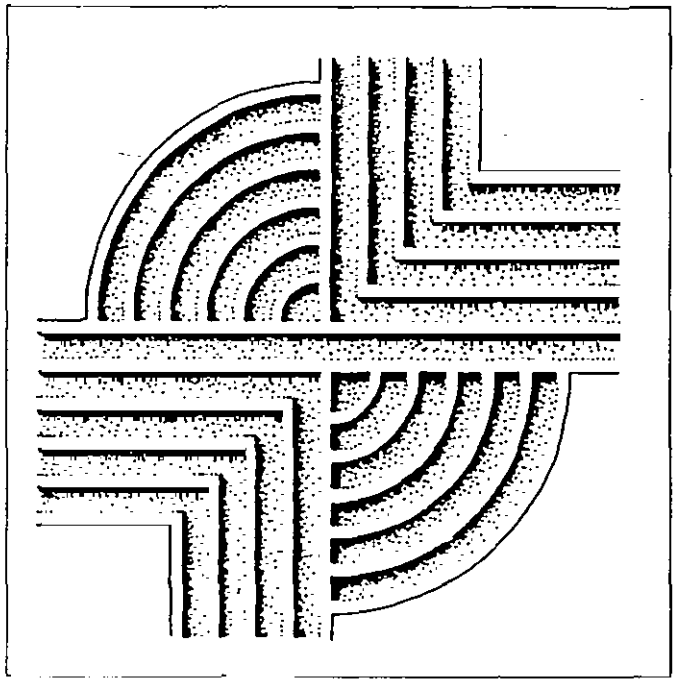
AN ARCHAEOLOGICAL SURVEY OF THE 557.5 HA SICILY DROP ZONE, FORT BRAGG, HOKE COUNTY, NORTH CAROLINA



CHICORA RESEARCH CONTRIBUTION 182

AN ARCHAEOLOGICAL SURVEY OF THE 557.5 HA SICILY DROP ZONE, FORT BRAGG, HOKE COUNTY, NORTH CAROLINA

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Prepared By:
Michael Trinkley, Ph.D.
Natalie Adams
and
Debi Hacker

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Chicora Foundation, Inc.
P.O. Box 8664 ▪ 861 Arbutus Drive
Columbia, South Carolina 29202-8864
Email: chicora1@aol.com

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ABSTRACT

This study represents an intensive archaeological survey of 557.5 ha Sicily Drop Zone at Fort Bragg, in Hoke County, North Carolina. The primary purpose of this investigation is to identify and assess the archaeological remains present in the drop zone for the National Register of Historic Places. There were also a number of secondary goals which included:

- an examination of changing prehistoric land use;
- the affects of clear-cutting and long-term exposure on archaeological sites;
- the effectiveness of 30 m interval transects at locating significant resources;
- changing lithic material preferences; and
- site function/duration based on artifact content.

The entire study area was examined using transects spaced at 30 m intervals. In areas of poor visibility shovel tests were placed at 30 m intervals. Where visibility was good (which included most of the drop zone) a surface inspection of a 15 m radius area around a shovel test station was performed. Once an archaeological site was identified, the area was shovel tested on a grid pattern at 10 to 20 m interval tests. In addition, at least one 50 cm square unit was excavated at each site.

A total of 40 sites and 85 isolated occurrences were identified within the project area. Of the archaeological sites identified, four (31HK89, 31HK118, 31HK125, and 31HK435) are recommended as potentially eligible for inclusion on the National Register of Historic Places. None of the isolated occurrences are recommended as eligible.

All of the sites contained prehistoric artifacts, although 31HK445 also contained two historic artifacts dating to the late nineteenth and early twentieth century. Of the 40 prehistoric sites, 28 are non-diagnostic lithic scatters, two have Early Archaic components, three have Middle Archaic components, one has a Late Archaic component, three have Early Woodland components, five have Middle Woodland components, one has a Late Woodland component, and three have non-diagnostic Woodland components.

It is recommended that additional testing take place at all four potentially eligible sites as soon as possible. If any of these sites are found to be eligible for the National Register, then data recovery should be performed in the near future. This urgency is based on the exceptional data losses which have taken place on the survey tract since it was first examined by Coastal Zone Resources in 1979. Delays in testing and, if necessary, data recovery will almost certainly result in the loss of these sites. No further work is recommended at the other 36 sites.

All of the sites recommended as potentially eligible for the National Register (particularly 31HK89, 31HK118, and 31HK125) have been damaged by erosion and/or deflation. In addition, the drop zone has been visited by collectors for a number of years which has depleted many of the diagnostic artifacts. If the sites are left as is, there may be little left of them in 10 years time. It is also recommended that the other drop zones at Fort Bragg be intensively surveyed in the near future since potentially eligible or eligible sites are under the same threat as those found at Sicily Drop Zone.

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ACKNOWLEDGEMENTS

While the work at Sicily Drop Zone was conducted in compliance with various national historic preservation requirements, we wish to thank all of those involved for their support and interest in the project. In particular, at Fort Bragg Mr. Wayne Boyko (fort archaeologist) and Ms. Bev Boyko (collections curator) provided guidance and good humor. We thank them for their help. Mr. Mark Jones of Integrated Training Area Management provided us with GPS assistance. Dr. David G. Anderson (National Park Service) administered the project for Fort Bragg. We appreciate his interest, encouragement, and confidence. Ms. Kimberly Washington (National Park Service) assisted us in navigating the paperwork for payment — a seemingly essential component of science.

We would also like to thank Ms. Almeta Rowland-White and Dr. Billy Oliver of the North Carolina Office of State Archaeology for providing direction for the background research and for clarifying curatorial issues. Also, Mr. Ken Robinson of the North Carolina Department of Transportation provided guidance concerning local projectile point type variances.

This is a unique opportunity to explore the archaeology of a section of North Carolina which has received relatively little attention. The job, however, has been made much easier by the tremendous number of individuals who have gone before us and on whose work we have repeatedly relied. Some were instructors, some were colleagues, some were collectors, a few crossed these lines, and a very precious few were also friends.

The success of this project is largely due to the dedication and professionalism of the field crew which included Mr. David Konieczko, Ms. Elizabeth Murdock, Mr. Dave Rauppius, Mr. Glen Rhyne, Ms. Mary Rossi, and Ms. Margaret Wyman. We appreciate their hard work. Thanks also to Ms. Windi O'Conner and Ms. Rachel Brinson who cataloged and processed the collections for curation.

INTRODUCTION

Background

This investigation of the 557.5 ha (1377 acre) Sicily Drop Zone was conducted by Ms. Natalie Adams of Chicora Foundation, Inc. for the National Park Service. While Fort Bragg is within Cumberland, Harnett, Hoke, Moore, Richmond, and Scotland counties, the drop zone is located entirely within Hoke County (Figure 1). The project area is bordered to the north by Manchester Road, to the east by Jumping Run Creek, to the south by Longstreet Road, and to the west by training areas P and Q (Figure 2).

Within the tract is a network of access roads with the major one, Ray Road, running roughly north-south through the middle of the drop zone. Other roads consist of a system of perimeter and firebreak roads as well as random two-rut vehicle tracts accessing different portions of the drop zone. The tract was clear cut about 45 years ago to be used as a parachute drop zone. Small clusters of trees can be found today in a few isolated places and trees are found along the drop zone fringes to the east and west. Sparse grass is found throughout the southern portion of the drop zone (Figure 3), while the northern portion is virtually vegetationless (Figure 4). A number of small sand dunes are found in flat upland areas of the tract, particularly in its northern half.

This work is being done in order to fulfill compliance with the National Historic Preservation Act (Public Law 89-665, as amended by Public Law 96-515) Guidelines for Federal Agency Responsibilities, under Section 110 of the National Historic Preservation Act, Army Regulation AR 420-40, and 36CFR800 (Protection of Historic and Cultural Properties). The project is administered for the United States Army by the National Park Service (NPS), Southeast Regional Office. The scope of work specified that the entire project area be surveyed as high probability using transects and shovel tests spaced at 30 m intervals (see **Research Strategy and Methods**). Measurements, in compliance with the NPS scope of work, were taken using metric units. In order to maintain consistency throughout this research, all measurements are provided using metric units and Table 1 provides conversions to English measures for those readers not familiar with the metric system. The only exception is that contours on site maps, which are taken from USGS map, are in feet. There was no way to translate these into meters and maintain accuracy.

Table 1.
Metric Equivalents

	LENGTH	
kilometer	km	0.62 miles
meter	m	39.37 inches or 3.28 feet
centimeter	cm	0.39 inches
millimeter	mm	0.04 inches
	AREA	
hectare	ha	2.47 acres
square km	km^2	0.3861 square miles
	WEIGHT	
metric ton	t	1.1 English tons
	TEMPERATURE	
C to F = (°C x 1.8) + 32 = °F		

These investigations incorporated a review of the files at the North Carolina Office of State Archaeology. A total of 78 previously recorded archaeological sites were within the survey boundaries. All were initially identified by Loftfield (1979) as a part of a reconnaissance survey of Fort Bragg, Camp MacKall, and Simmons Army Air Field. Additional information concerning this previous survey, and the sites identified by Loftfield, can be found in the **Research Strategy and Methods** section, as well as the **Conclusions**.

In addition, the fort's Historic Preservation

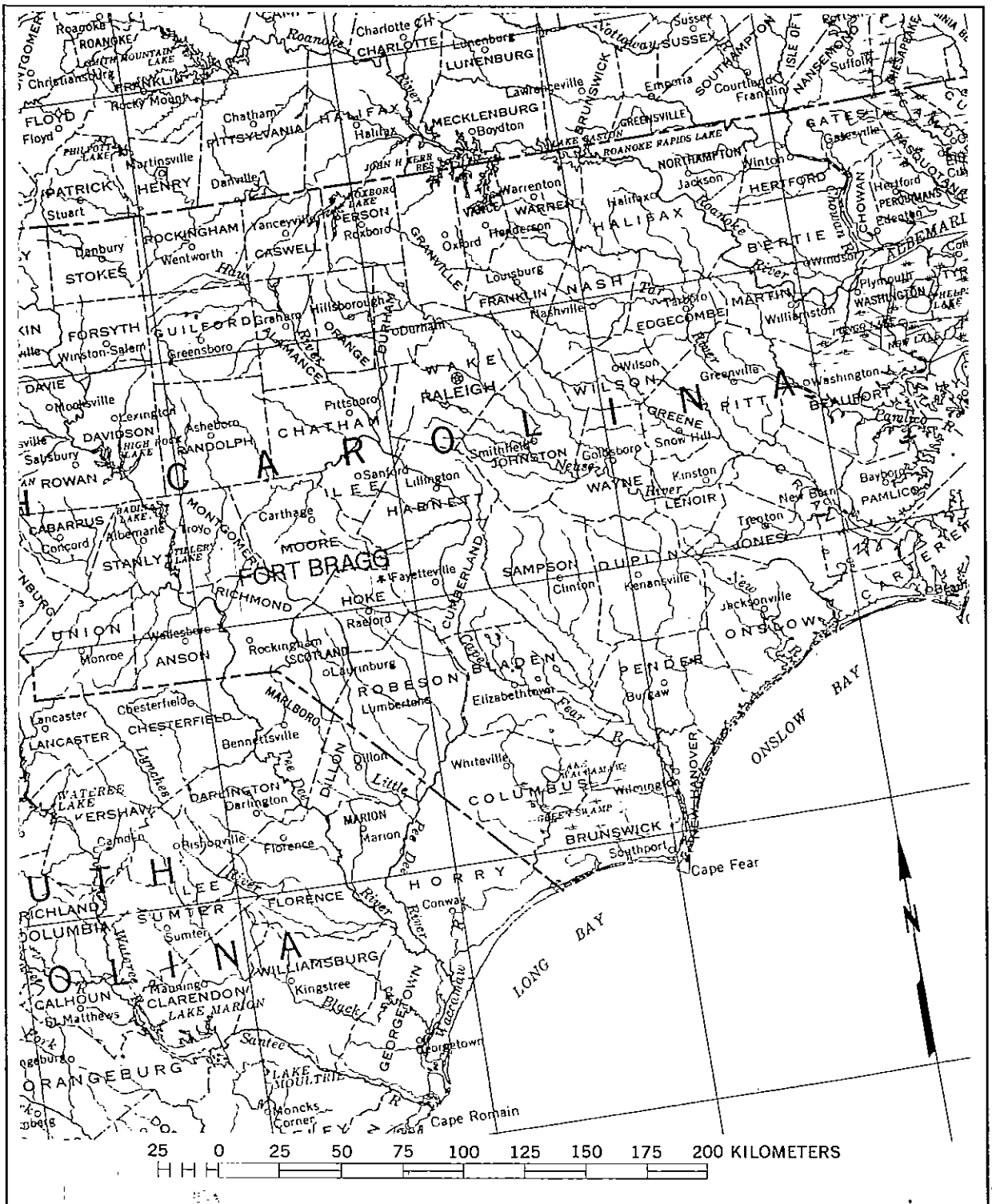

Figure 1. Location of the project area in Hoke County, eastern North Carolina (USGS United States 1972 1:2,500,000)

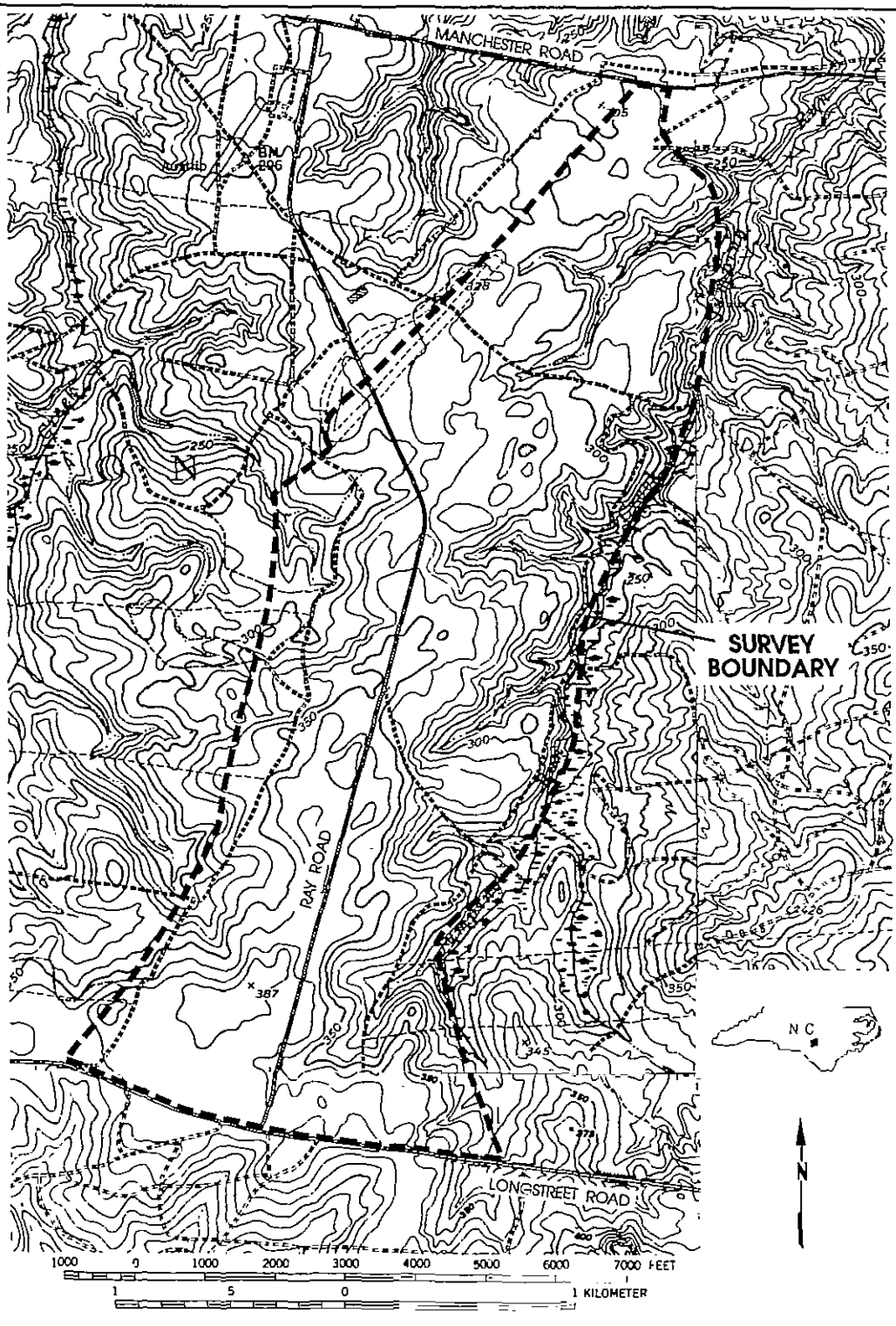

Figure 2. Sicily Drop Zone survey area (Lobelia, Overhills, and Nicholson Creek USGS 7.5' topographic maps 1:20,000).

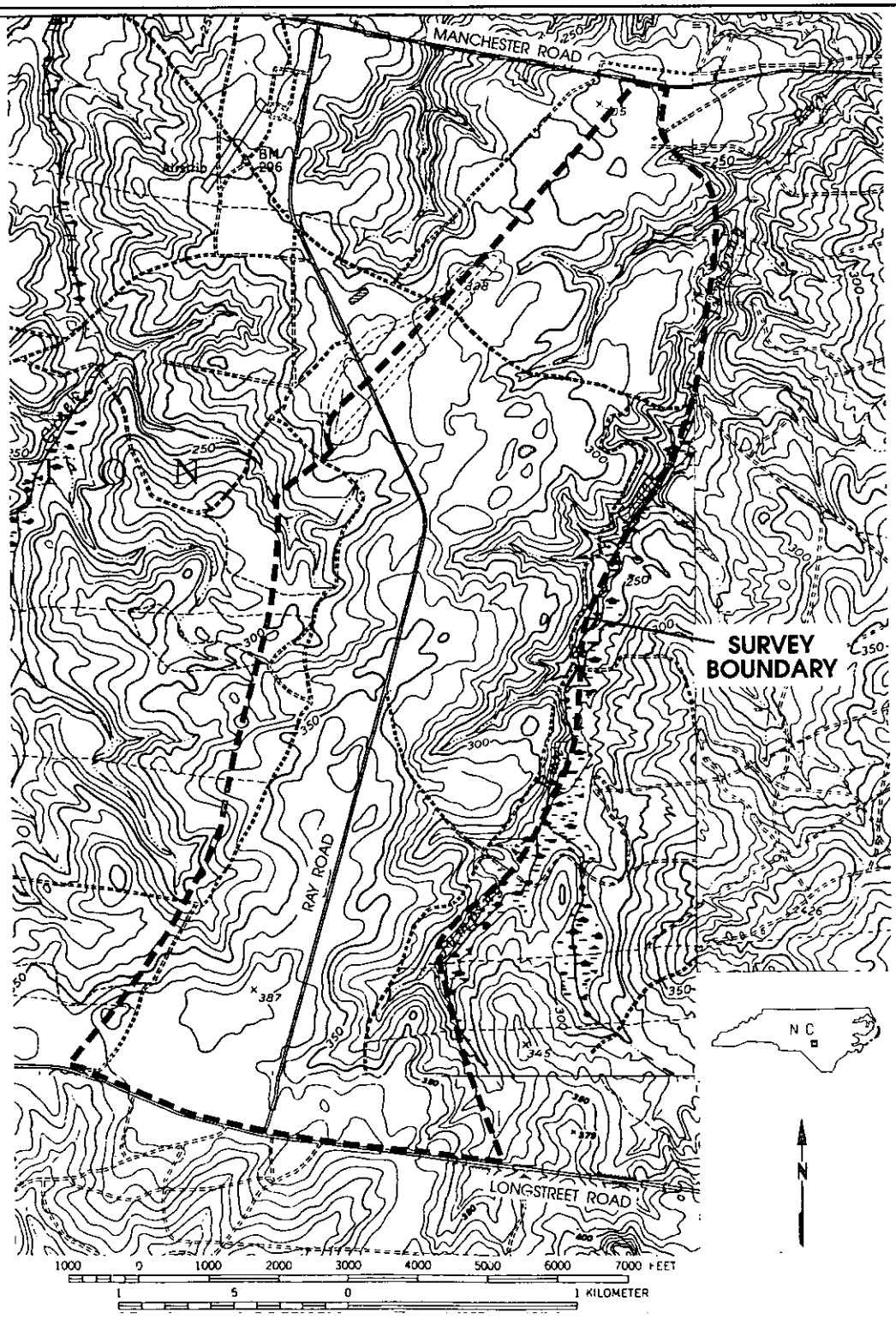

Figure 2. Sicily Drop Zone survey area (Lobelia, Overhills, and Nicholson Creek USGS 7.5' topographic maps 1:20,000).

Plan (Braley 1990) and Loftfield's (1979) reconnaissance study were consulted regarding sites or structures on the National Register of Historic Places within the drop zone. None were recorded. Background research was conducted at the North Carolina Office of State Archaeology and published reports and the preservation plan were consulted regarding previous research at Fort Bragg.

The Principal Investigator for the project was Dr. Michael Trinkley. The field director was Ms. Natalie Adams. Field crew consisted of Mr. David Konieczko, Ms. Elizabeth Murdock, Mr. David Rauppius, Mr. Glen Rhyne, Ms. Mary Rossi, and Ms. Margaret Wyman. The survey was conducted from November 1 to November 29, 1995.

Curation

Archaeological site forms have been filed with the North Carolina Office of State Archaeology. The field notes, photographic materials, artifact catalogs, and artifacts resulting from these investigations have been curated at Fort Bragg using their accessioning and cataloging system. All records and duplicate copies will be provided to Fort Bragg and will be maintained by that institution in perpetuity.

Figure 3. Southwestern portion of Sicily Drop Zone, view to the north.

Figure 4. Northern portion of the Sicily Drop Zone, view to the north.

NATURAL SETTING

Physiography and Drainage

Fort Bragg, which encompasses about 60,000 ha, forms a roughly rectangular shape measuring about 19 km north-south by about 44 km east-west. The fort's most distinctive feature is perhaps its diversity of relief. Elevations range from about 63 meters in the west to about 155 meters in the northeast along Gibson Creek. Scattered across the base are several "hills" about 30 meters higher than the surrounding topography. Loftfield observes that the extremes in topography "have been exaggerated by an erosive process on the sandy soils along the numerous streams" (Loftfield 1979:3).

The fort's drainage pattern (well illustrated by Loftfield [1979:Figure 1]), consists of a number of relatively small streams and creeks flowing either north or south from an east-west ridge that runs through the center of the reservation. Those to the south flow into the Cape Fear River, while those to the north flow into the Little River (which itself empties into the Cape Fear). Rockfish Creek, the headwaters of which originate on Fort Bragg, serves as the major drainage for the creeks in the western portion of the base (Figure 5).

The Fort is situated entirely within the Sandhills physiographic province — a narrow band of ancient marine sediments sandwiched between the Coastal Plain, about 18 km to the southeast, and the Piedmont, about 50 km to the northwest. Almost every previous study on the base mentions that the Sandhills seem to be a favorite location for military installations (such as Fort Jackson, S.C. and Fort Gordon, Georgia) — the land being cheap, and the climate and topography offering the potential for year-round use.

The 557.5 ha Sicily Drop Zone study area is located in Hoke County, North Carolina. Hoke County is situated in the Sandhills region of Upper Coastal Plain physiographic region and is located in the south central portion of North Carolina. The county is bounded to the north and northwest by Moore County, to the east by Cumberland County, to the south and southeast by Robeson County, and to the west by Scotland County. The project area is located in the northern portion of the county (see Figures 1 and 5).

The topography of the county consists of gently undulating hills with elevations ranging from about 250 to 500 feet above sea level. The Sandhills are characterized by broad, sandy ridges and long, less sandy sideslopes (Hudson 1984:2). The most prominent topographic feature within the project area consists of a large north-south oriented sandy ridge. Elevations drop somewhat sharply on either side of the ridge to Jumping Run Creek to the east and tributaries of Deep Creek to the west. The elevations in the study area range from 77 to 117 m above sea level.

The western third of Hoke County is drained by the Lumber River while the eastern two thirds is drained by creeks which flow into the Cape Fear River, including Lower Little River along the northern border of the county (just north of the project area) and Little Rockfish Creek along the eastern border of the county. Jumping Run Creek and Deep Creek drain the project area, flowing into Lower Little River. According to the State Board of Agriculture:

> [t]hrough the pine lands run numerous bold, strong and swiftly flowing streams, never diminished by drought and rarely excited by freshet. These, from the earliest settlement, furnished convenient mill-sites, and originated that active lumber industry so stimulating to the prosperity of the county and that the towns on the Cape Fear river; and, up to the successful introduction of

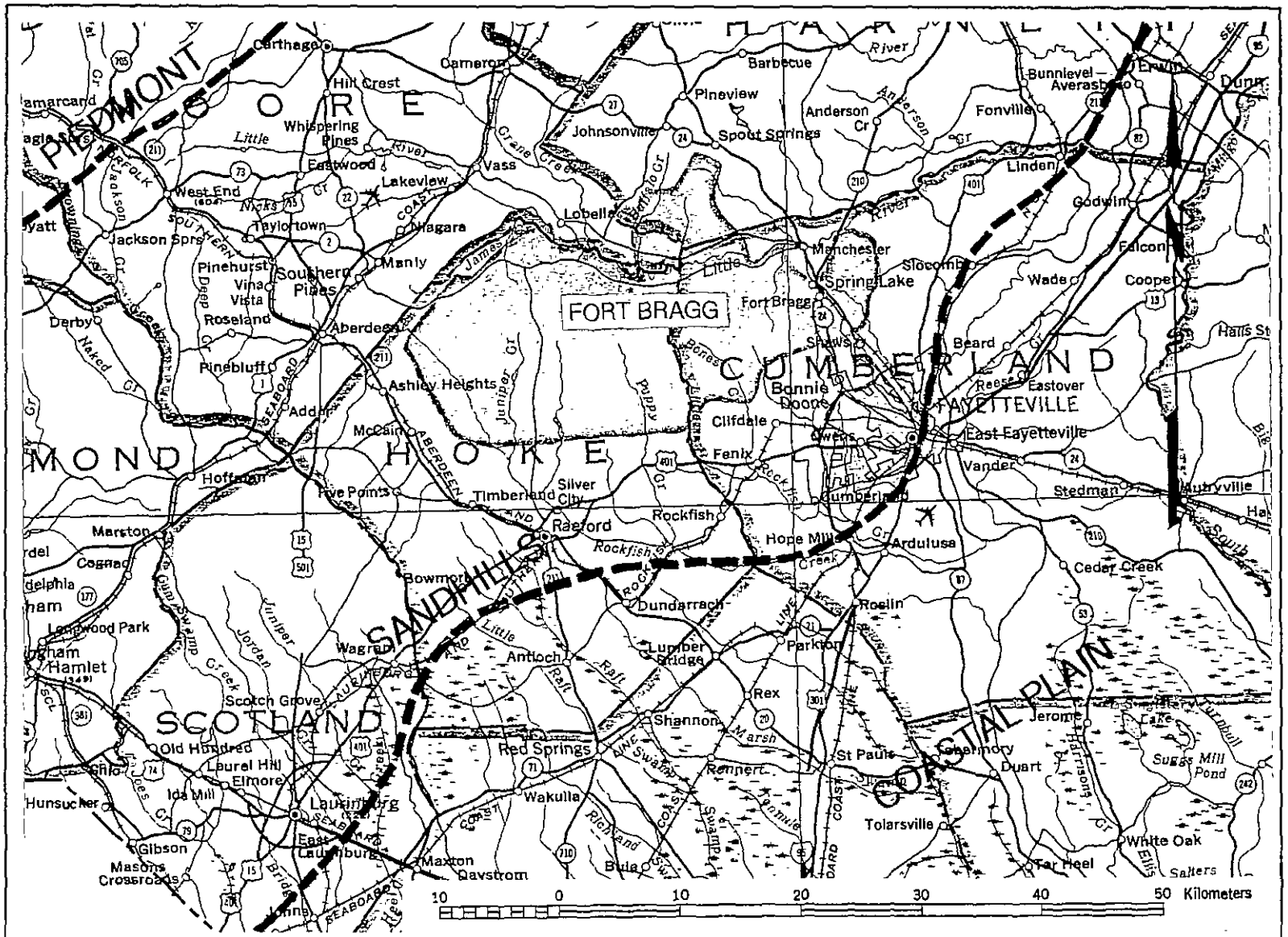

Figure 5. Physiographic setting of Fort Bragg in the Sandhills and the location of the Sicily Drop Zone.

cotton manufacture into the State,their power was speedily applied to the use of cotton-mills, which were built in the town of Fayetteville, on Cross and Blount's creek, on Buckhead, Beaver Dam and Rockfish (two of these) creeks, and on Lower Little River; and on all of these there are now large and flourishing cotton factories (State Board of Agriculture 1896:327).

Figure 6. Silted-in drainage adjacent to 31HK118, view to the north.

Since the drop zone has been clear cut there have been some changes in the original physiography and drainage of the area. For instance, local citizens state that because of erosion, the topography of hills and drainages have become less sharp and more gentle. It is likely that some sites which today are found far from flowing water had springs which emerged much closer to the site. A good example is 31HK118 which was occupied from the Paleoindian to the Woodland periods. The site is located on a hill top adjacent to a drainage rim. Today, flowing water is located about 450 m away. Given the density and length of occupation at 31HK118, it is likely that a source of water was located closer to the site. Figure 6 shows the silted in drainage adjacent to 31HK118.

Geology and Soils

Hudson (1984:2) describes the geology of the area simply as several layers of unconsolidated sediment (primarily of the Tuscaloosa Formation, deposited in the Upper Cretaceous period) underlain by bedrock which is composed of volcanic slate. This bedrock is generally 62 to 125 m below surface, however, near the town of McCain (just west of Fort Bragg), bedrock is found at about 34 m below surface. No bedrock is known to be exposed anywhere in the county or project area.

Immediately available lithic resources consist of the river pebbles of a relatively high quality quartz found in gravel bars of Lower Little River (just north of the project area) and the larger tributaries. Metavolcanic rock does not outcrop on Fort Bragg. However, there is a source located a relatively short distance away, about 16 km, on the Hoke-Moore county line (North Carolina Department of Conservation and Development 1958). Even greater numbers of resources are available in the Slate Belt, just within the Piedmont. Igneous rocks within the Slate Belt include rhyolite, andesite, and intrusive quartz veins.

Traditionally the soils of Hoke and Cumberland counties have been identified as Norfolk-Ruston and Norfolk Sands (U.S. Department of Agriculture 1939:1069-1072). The Norfolk-Ruston soils were associated with the Coastal Plain, while the Norfolk Sands were associated with the Sand Hills. In neither area has climate favored the development of organic matter, so the soils are light-colored, dominantly sandy in the surface horizon, ranging from coarse sands to fine sandy loams. Almost all are medium to strongly acid in reaction.

Today, modern soil science identifies 10 primary soil associations in Cumberland County and six in adjacent Hoke County, although only two are associated with Fort Bragg — the Blaney-Gilead-Lakeland Association and the Wagram-Faceville-Norfolk Association. The former is characterized by excessively drained to moderately well drained soils on highly dissected uplands while the latter is characterized by well drained to poorly drains soils found on broad, smooth uplands (Hudson 1984).

The soils in the project area are all well drained. The tract is characterized by Blaney, Candor, Fuquay, Gilead, Lakeland, and Vaucluse soils (Figure 7). The most prominent soil type is excessively drained Lakeland sand which is found on about 70% of the project area. Candor sands are somewhat excessively drained and are found on about 20% of the project area. The other minority types, in order of prominence, are well drained Blaney loamy sand, well drained Vaucluse loamy sand, and moderately well drained Gilead loamy sand. All of the sites found in the project area occur on Lakeland, Candor, or Blaney soils although only one site was found on Blaney loamy sand. This suggests that prehistoric Indians preferred to occupy the well drained sandy soils.

Since the effects of erosion/deflation on archaeological sites is a topic of interest at Sicily Drop Zone, typical soil profiles as described by Hudson (1984) are briefly discussed below.

The **Blaney Series**, characterized by Blaney loamy sand with a 2 to 8% slope, exhibits an A (or often Ap) horizon about 10 cm in depth of dark grayish brown loamy sand (10YR4/2). From 10 cm to a depth of 64 cm is an E horizon of light yellowish brown loamy sand (2.5YR6/4). The underlying Bt1 horizon, to a depth of 87 cm, is a hard and compact brownish yellow sandy clay loam (10YR6/6). Below this, to 1.58 m, is the Bt2 horizon of reddish yellow sandy clay loam (7.5YR6/6). The C horizon, typically identified at the base of the Bt2 soil, is a yellow loamy coarse sand (10YR7/6). The Blaney soils have some of the higher soil erodibility factors present (ranging from .15 to .28).[1]

The **Candor Series** soils may have slopes from 1 to 15%. A typical Candor sand, with a 1 to 8% slope will have an Ap horizon of dark grayish brown sand (10YR4/2) to a depth of 23 cm. Underlying the AP horizon is an E horizon to 51 cm consisting of yellowish brown sand (10YR5/4). The Bt horizon occurs to a depth of 77 cm and consists of a yellowish brown loamy sand (10YR5/6). The E' horizon is found to 1.53 m and consists of brownish yellow sand (10YR6/6). The lowest horizon is B't, to a depth of 2 m, is characterized by a strong brown sandy clay loam (7.5YR5/6). From the E horizon through the B't horizon these soils may contain coarse ironstone in quantities ranging from 5 to 15%.

The **Lakeland Series**, formed in the uplands and consisting of excessively drained soils, will typically have a profile with Ap soils, usually dark gray sand (10YR4/1), to 15 cm. Below the Ap soils, to a depth of 38 cm is the C1 horizon characterized by yellowish brown sand (10YR5/6). The C2 horizon, to a depth of 1.12 m, consists of strong brown sand (7.5YR5/8). This is replaced by the reddish yellow sand (7.5YR6/8) typical of the C3 horizon to a depth of 1.33 m. Underlying this is the C4 horizon, composed of brownish yellow sand (10YR6/6), to a depth of 1.59 m. Below this, to 2.10 m, is the C5 horizon of yellow sand (10YR7/6). Pockets of white sand are not uncommon in this below a depth of about a meter.

Typically, the Sand Hills region experiences relatively little erosion. In undisturbed

[1] The soil erodibility factor (expressed as K) used in the universal soil loss equation is a measure of the susceptibility of soil particles to detachment and transport by rainfall and runoff. It basically indicates the susceptibility of a soil to water-induced erosion. The soil loss tolerance factor (T), sometimes called the permissible soil loss, is more often used to help quantify wind-induced erosion. This factor is expressed as the maximum rate of soil erosion that will still permit a high level of crop productivity. It is therefore somewhat less useful in these discussions. Regardless, all of the discussed soils in the project area have the maximum T rating of 5, or 5 tons of soil per acre per year.

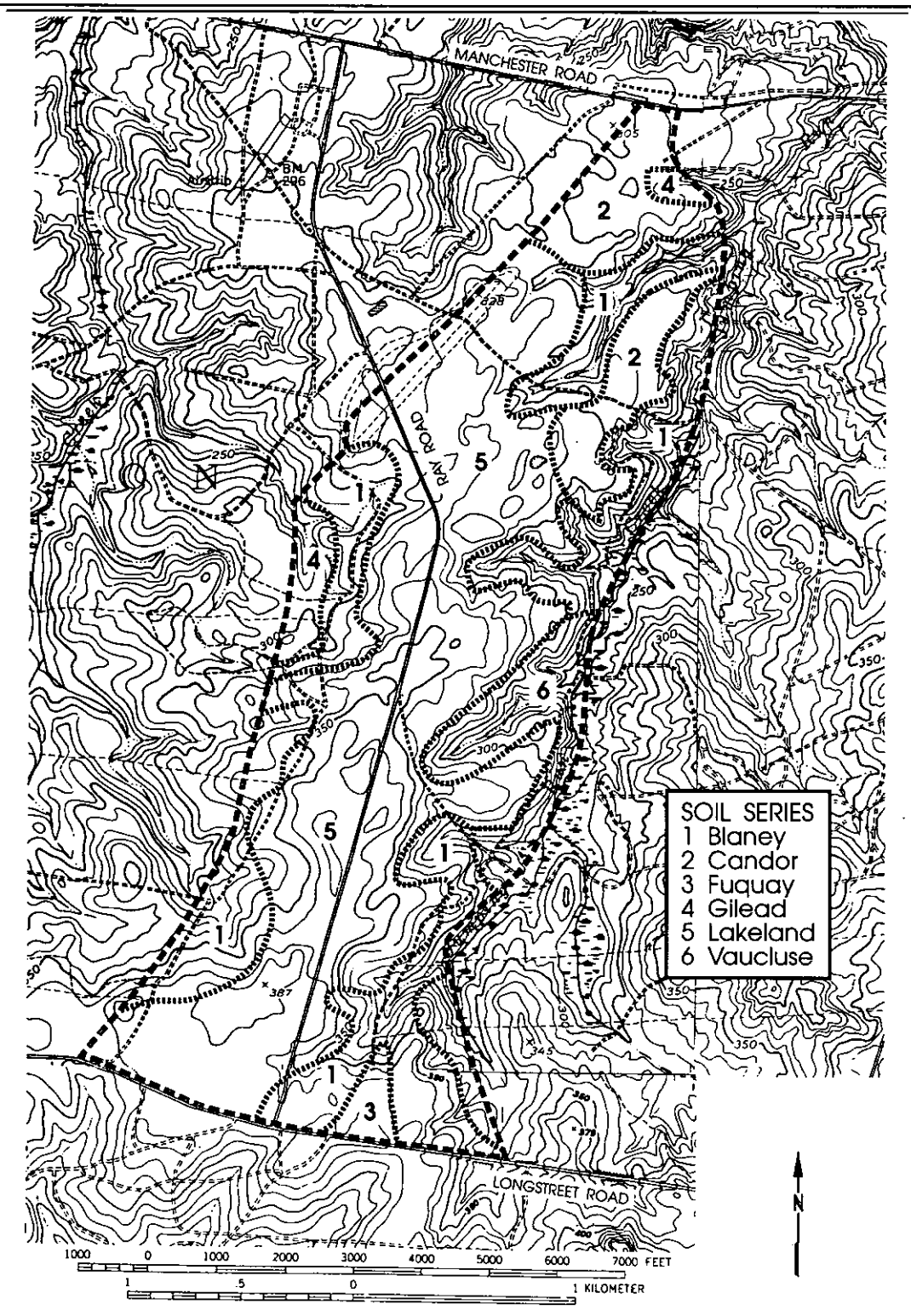

Figure 7. Primary soil series found on the Sicily Drop Zone tract (adapted from Hudson 1984:Map 2).

areas 0.012 t of soil loss per ha per year has occurred. Logged areas experience about 0.319 t of soil loss per ha per year. The most destructive erosional situation described by the United States Department of Agriculture (1980:25) are logging roads where erosion consists of 22.46 t of soil loss per ha per year. As will be discussed in greater detail later, Sicily Drop Zone is estimated to have lost 291.8 tons of soil per ha per year through water and wind erosion (John Ray, personal communication 1995). This erosion, as might be imagined, has caused a great deal of damage to the archaeological resources.

Climate

North Carolina is part of the warm temperate zone, characterized by what might be called a placid climate, with local variations due partially to the tremendous range in elevation from the mountains to the coast. Hoke County is generally hot and humid in the summer because of the moist, maritime air. The winters are moderately cold but short since the mountains to the west protect the area from many cold waves. The average winter temperature in nearby Fayetteville is 6°C. In the summer the average daily temperature is 26°C in Fayetteville. In general spring comes earlier to the Sand Hills than to the adjacent Piedmont since the loose, well-drained soils can warm more rapidly. This benefit, however, is coupled with the general dryness of the soils. The total annual precipitation is 1.07 m. Of this, 60% usually falls in April through September, which includes the growing season for most crops (Hudson 1984:2; see also Reed 1936).

During the late Pleistocene and early Holocene periods temperatures were considerably cooler than they are today. Temperatures began to moderate and approach modern temperatures around 7,000 B.P. along the Southeast Atlantic Slope (Wright 1976:594). A more thorough discussion is provided below relating vegetational change to these climatic ranges.

Floristics and Paleoenvironment

The Sandhill Province is dominated by longleaf pine and various xeric oaks such as post oak, Margaret's oak, bluejack oak, and turkey oak. In addition, much of the overstory vegetation includes sweetgum, beech, southern red oak, mockernut hickory, and southern sugar maple (Barry 1980:139-140; Gade and Stillwell 1986). This, in general, adequately characterizes the vegetation of Fort Bragg. Loftfield observed that the vast majority of the post consisted of, "droughty sandy upland habitat longleaf pine (*Pinus palustris*), turkey oak (*Quercus laevis*), with a ground cover of wire grass (*Gaylussacia dumosa*)" which was being kept in balance by periodic controlled burns (Loftfield 1979:9).

The Sicily Drop Zone presents a somewhat different view, being almost totally denuded. In the wooded fringe areas of the dropzone, vegetation consists of longleaf pine and the various xeric oaks. There is very little overstory vegetation, and where it is found it consists primarily of pine. Ground cover, where it occurs consists of wiregrass.

In the 1860s only about 10% of what would later become Hoke County was improved for cultivation (Hilliard 1984:Map 44), while by the 1940s about 25% of the county was cropped with around 70% being forested (Cruikshank 1944:11-12). Only about 7% of Fort Bragg, however, was being cultivated prior to its purchase by the military in the second decade of the twentieth century. Cotton and corn were historically produced on the bottomlands, while the rolling sandy uplands were dominated by smaller farms producing grains and fruits. The area, before the Civil War, was the site of experiments in the production of tea (State Board of Agriculture 1896:327).

Pollen cores obtained from the Southeast Coastal Plain indicate a sequence of successional forest types from the Full Glacial through the Post Glacial periods (Watts 1971; Whitehead 1965). Before strong evidence of human population (pre-15,000 B.P.), cold-adapted vegetation predominated by spruce and jack pine was found in the Piedmont and Coastal Plain area. Other less common species included oak and ironwood. All of these species suggest a much colder and drier environment than found today (Watts 1980:326). Some have suggested that this climate was much

like today's eastern Canadian boreal forests, dominated by pine and spruce distributed in a mosaic pattern of stands within sedge-dominated prairies. There is evidence for parabolic dune formations during the Full Glacial period as derived from sediments from the Pee Dee River. These dune fields are also present north of the Cape Fear. This arid phase is also evidenced in the pollen record of Singletary Lake where there is an increase in the sand fraction during this period (Whitehead 1973; Claggett and Cable 1982).

The somewhat warmer and moister environment evidenced in the Late Glacial (15,000 to 10,000 B.P.) is associated with an increase in deciduous species. Northern hardwoods, such as oak, hickory, beech, birch, and elm began replacing the spruce and jack pine populations. This change corresponds with warmer summer temperatures and colder winter temperatures as well as an increase in precipitation. It is during this period that there is the first moderately well documented evidence for human occupation (Watts 1980; Sassaman et al. 1990:21). This period was a transitional period between the glacial Late Pleistocene and the essentially modern climatic conditions of the Holocene. The resulting mesic forest, with its relatively high percentages of beech and hickory, has no modern analog and was the result of the cool, moist conditions which characterized this transition.

During the Post Glacial (10,000 B.P. to present) oak and hickory dominated the region. Other species such as walnut, hemlock, and hazelnut disappeared from the pollen record. By 9,500 B.P. hickory and ironwood species declined and were replaced by sweetgum and blackgum. These changes prior to 7,000 B.P. suggest periods of rapid warming and increased moisture (Watts 1980; Watts and Stuiver 1980). It has been observed that these very rapid environmental changes would have created a dynamic ecosystem requiring constant adaptive adjustments on the part of early groups (Cable and Mueller 1980:7).

In the Sandhills region southern pine communities displaced the oak-dominated forests between 8,000 and 6,000 B.P. which led to a decrease in mast production (Sassaman et al. 1990:22). This vegetational change probably had an effect on prehistoric land use during certain times of the year, since nut masts were probably more isolated and concentrated rather than widespread. Coupled with these vegetational changes was a cooler, moister climate (Watts 1971 and 1980).

Brooks et al. (1986) suggest that not only latitude, but also elevation affected when vegetational changes occurred. As a result, broad environmental changes probably occurred first in the Coastal Plain.

From about 5,000 B.P. and continuing to the present, Whitehead (1973) found pine increasing slightly, although oak appeared to remain dominant in natural forest stands. The precontact environment of the Piedmont Southeastern United States was termed "temperate deciduous forest" by Shelford (1974:56-88) with oak and hickory interspersed with pine, maple, ash, and other deciduous species (for a graphic representation see Shantz and Zon 1936). Küchler (1964) identifies the "potential natural vegetation" of the Fort Bragg as an area of Southern Mixed Forest, surrounded by the more common Oak-Hickory-Pine Forest. Küchler's forests represent what would "exist today if man were removed from the scene and if the resulting plant succession were telescoped into a single moment" (Küchler 1964:2). The result for the project area would be tall forests of broadleaf deciduous and evergreen and needleleaf evergreen trees. The dominants would include beech, sweet gum, southern magnolia, slash pine, loblolly pine, white oak, and laurel oak. Hickories would occur as minor components, along with dogwood and hollies.

By the historic period the Sand Hills were dominated by loblolly pine. Although the name means, literally, "mud puddle," and was likely applied since the tree grew on wet soils, the loblolly is also known as the "bull pine" because of its prodigious size and remarkable ability to invade dry, flat terrain and even the hilly uplands. The pines formed vast, open forests interrupted only by the occasional inland swamp and its accompanying hardwoods.

The Sand Hills, their soil, and their

vegetation frequently attracted the attention of observant commentators. One, Edmund Ruffin, remarked in 1843 that:

> the land hereabouts is barren, or but triflingly productive. The middle grounds between the rivers are the highest, and consequently the most barren . . . . Their soil is of so sterile a nature, that in many places it produces no grass to cover it; and the tracks of any animal passing over it, are discernable, as if they had been upon snow. The low grounds among these hills are either extensive swamps and bays, or narrow vallies, into which, the mould from the adjacent high lands have been deposited by the rains which run down their sides. Hence they become suitable for agriculture and pasturage, and are principally those places, near which settlements are effected (Mathew 1992:4).

On another occasion Ruffin commented:

> the soil is of deep sand & very poor. The growth pine intermixed with small scrub & other oaks. . . . the country seems as desolate as possible. Not a creature was seen, nor any mark of man's neighborhood, save the deep sandy track in which I was riding (Mathew 1992:262).

European occupation of the countryside, including occupation of the Sand Hills, gradually changed its appearance. The pines which dominated the topography, for example, began to give way to scrubby hardwoods by the early 1800s (Silver 1990:187). It is almost certain that the process was largely completed by the time that Ruffin traveled across the region in the mid-1800s. Yet there were other, equally momentous changes. Turkeys and other wild fowl were less common, the flocks of Carolina parakeets and passenger pigeons were about snuffed out. Buffaloes were already gone from the neighboring Piedmont. In the lowland swamps the beavers, otters, and minks were close to gone, as were other occasional visitors such as bears, wolves, panthers, and bobcats.

The countryside was becoming increasingly dominated by small farms. The new ecology created by clearing and farming grains encouraged flocks of quail. While the minks and otters gave way to hunting pressures, they were quickly replaced by the opossum. But into the nineteenth century the most common animals were the cattle, hogs, and sheep brought by the Sand Hill settlers. Silver notes that, "fewer canebrakes and overgrazed mixed hardwood forests attest to the forage habits of these Old World Beasts" (Silver 1990:187-188). The changes were dramatic, gradually giving rise to the Sand Hills we know today.

PREHISTORIC AND HISTORIC OVERVIEW

Previous Research

Some of the earliest archaeology includes the 1860 excavations by Hamilton MacMillan of a mound southwest of Fayetteville, near Rockfish Creek (Holmes 1916). The mound, about 0.5 m high and 6 m in diameter, contained a large number of skeletons, reputed to have represented as many as 50 individuals. Although Holmes offered no temporal estimate for this and similar mounds in the vicinity, he did note that, "they are quite different from those mounds of Caswell and other counties of the western section of the state, and of much less interest so far as contents are concerned" (Holmes 1916:19). This was one of the earliest accounts of the differences between the "treasures" found in Mississippian temple mounds and the dearth of remains which characterized Middle Woodland burial mounds.

Nearly 30 years later, Charles Peabody visited Cumberland County on vacation with his daughter. During this respite he excavated four mounds near Hope Mills (Peabody 1910:429; Coe 1983:165). His findings paralleled the earlier studies of Holmes. Found were human bones, smoking pipes, a celt, a shell gorget, and similar Middle Woodland artifacts. Peabody's work also revealed the relatively strong local interest in the past. Peabody's contact, Dr. J.W. McNeil, was a participant on another archaeological excursion which "explored" a mound south of Little Rockfish Creek about 24 km southwest of Fayetteville (Oates 1972:328-329).

The next archaeological activity in the Fayetteville area was probably the investigations of Howard MacCord, who was stationed at Fort Bragg in the early 1960s. Intrigued by the mounds in the area he excavated one of them, the McLean Mound on the east side of the Cape Fear River (MacCord 1966). The mound, which was apparently as high as 1.8 m in the 1920s had eroded down to just over a half meter by the time of the study. Perhaps MacCord's most significant contribution was keeping alive the interest in burial mound studies (see Coe et al. 1982; Phelps 1983; Wetmore 1978; Wilson 1982).

Previous archaeological work at Fort Bragg includes Loftfield (1979), McCullough (1985), Jameson (1986a; 1986b), Braley (1988, 1990), Braley and Schuldenrein (1993), King et al. (1992); and Abbott (1994; 1995).

Loftfield's (1979) study consisted of a reconnaissance level survey of about 6,690 ha which consisted of a 15% sample of the entire Fort Bragg property. He recorded 490 archaeological sites of which 78 (or 15.9%) occurred within the boundaries of Sicily drop zone (Figure 8). Loftfield found that prehistoric sites were most often located on hilltops, toe slopes, upland flats, and saddles. Usually they occurred in association with rank 1 streams or springs and were found on sandy soils. Typically the sites were located on a northern, northeastern, or eastern slope face. He predicted that at Fort Bragg the average site density would be 10 sites per km^2.

During Braley's (1988) work at the Northern Training Area, he tested Loftfield's model for site location and found it to be useful (see also Braley 1990:22). However, Braley (1988) recorded many more sites (15.8 sites per km^2) than predicted by Loftfield's model. Of course, Loftfield's predictions were based on a reconnaissance level study where primarily fire break roads and drop zones were surveyed, whereas Braley's (1988) work consisted of an intensive survey of a 15% random sample. He found that site density was slightly higher in lowland settings (1990:23). Both Loftfield's and Braley's models focussed on prehistoric resources, and thus far no model has been provided for historic sites.

A notable early attempt to establish

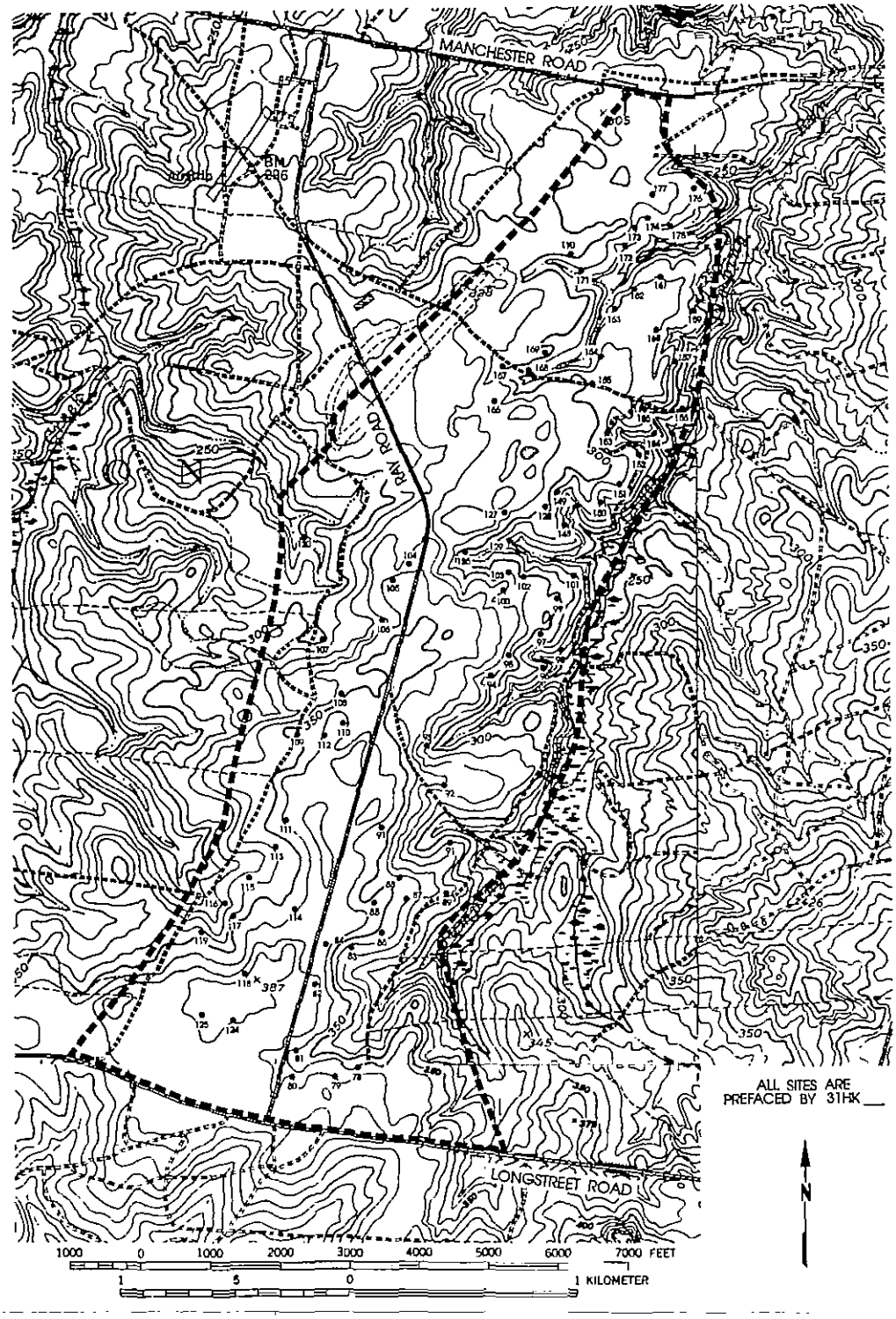

Figure 8. Sites previously identified in the project area.

prehistoric settlement patterns was undertaken in 1980 using NPS Survey and Planning grant funds to explore Sampson County, situated east of and adjacent to Cumberland (Hackbarth and Fournier-Hackbarth 1981). This study identified 196 sites and environmental and locational attributes for a random sample were examined in the hope of establishing predictive models. The results, however, were rather mixed. Most sites were found (not unexpectedly) near water sources. There was also a correlation between some loamy sands and sands and sites in general (Hackbarth and Fournier-Hackbarth 1981:78), although there seemed to be no preference by temporal period. Attempts to determine preferences for different lithic materials by time period were also largely unsuccessful (Hackbarth and Fournier-Hackbarth 1981:78).

In 1986 Kenneth Robinson conducted a series of reconnaissance level studies for the Cumberland County Commissioners and Administrators as part of a NPS Survey and Planning Grant. His findings document the exceptional diversity of prehistoric and historic resources in Cumberland County, although given the nature of the study no clear statements could be made concerning either site densities or predictive models (Robinson 1986:44).

In neighboring Moore County, King et al. (1992) also found that there was a preference for lowland settings. However, the sites in the uplands were larger, a departure from Braley's (1990) expectations that larger sites would be found in the lowlands. King et al. (1992:125) concluded that upland sites were occupied for longer periods of time and perhaps by more people at any given time. Site density here was similar to that found by Braley (1990) (15.2 site per km^2).

Although there has been a great deal of survey information gathered from the Sandhills region, there have been few excavations. Some limited excavations were conducted at a prehistoric site identified during the survey of the Rockfish Creek Wastewater Sewage Treatment Facility in southern Cumberland County. McLean and Sellon (1979) note that the site was a "mixture of Woodland and Archaic artifacts" overlying a "sparsely occupied zone of Archaic lithic material with no diagnostic artifacts" about 40 cm below the surface (McLean and Sellon 1979:65). The modest assemblage included Archaic projectile points and several hundred sherds. As Robinson (1986:42) points out, "there is still a need for re-evaluation and synthesis of the material" and little more can be said about this study.

Sassaman et al. (1990) have excavated a number of sites at the Department of Energy's Savannah River Site in the Sandhills of South Carolina. Sassaman et al. (1990) excavated several Woodland Period sites which are interpreted to have functioned as residential bases. These sites are characterized by rock clusters (which are assumed to be hearths or food preparation areas), discrete clusters of lithic debitage, and household areas which contain few artifacts.

While further removed, it seems almost inconceivable not to mention at least a few sites on which much of North Carolina's prehistoric chronology is based. About 65 km from Fort Bragg to the northwest is the Town Creek mound and village site. Described by Loftfield (1979:12) as the "great center of Pee Dee culture," it might better be viewed, at least culturally, as a small mound in a big pond. Regardless, work there has defined the Pee Dee culture, ceramics, and people (Coe 1983, 1995; Ferguson 1971; Reid 1967). About 80 km to the northwest are the equally important sites of Hardaway and Doerschuk (along with the less well reported sites at Morrow Mountain and Lowders Ferry) (Coe 1949, 1964).

Historic resources have tended to take a "back-seat" to prehistoric sites in the research conducted in the general vicinity of Fort Bragg. During surveys for the Rockfish Creek Wastewater Sewage Treatment Facility, Robinson mentions that the location of "Folly Fort," a Confederate Civil War fortification built to defend the Cape Fear River, was identified (Robinson 1986:52). Otherwise, historical archaeology has tended to focus on urban research in Fayetteville (for a synopsis see Robinson 1986:46-48).

Turning to South Carolina, Brooks and Crass (1991) have published a predictive model for

historic resources on the Savannah River Site based on survey and archival data. While early pioneers settled on the Savannah River, by the late eighteenth century, settlements had progressed up the larger drainages. A similar situation appears to have occurred in the Cape Fear River Valley (see Meyer 1961: Maps V-VIII; Loftfield 1979).[1] As better road systems developed in the nineteenth century, settlement became more road oriented (Brooks and Crass 1991:78-79). However, Abbott et al. (1995:23) point out that because the Sandhills soils were poor for growing crops, particularly in the uplands settlers were deterred from living in this area. It is likely that only lands bounded by creeks or rivers were found to be suitable for agriculture. A similar observation was made for neighboring South Carolina by Edmund Ruffin in the late antebellum (Mathew 1992). This suggests that historic settlement patterning may have changed very little through the county's history.

Prehistoric Overview

Overviews for North Carolina's prehistory, while of differing lengths and complexity, are available in virtually every compliance report prepared. There are, in addition, some "classic" sources well worth attention, such as Joffre Coe's *Formative Cultures* (Coe 1964), as well as some new general overviews (such as Phelps 1983 and Ward 1983). These can be supplemented with a broad range of thesis and dissertations produced by students of North Carolina's colleges and universities. Also extremely helpful, perhaps even essential, are a handful of recent local synthetic statements, such as that offered by Sassaman and Anderson (1994) for the Middle and Late Archaic. Only a few of the many sources are included in this study, but they should be adequate to give the reader a "feel" for the area and help establish a context for the various sites identified in the Sicily Drop Zone study. For those desiring a more general synthesis, perhaps the most readable and well balanced is that offered by Judith Bense (1994), *Archaeology of the Southeastern United States: Paleoindian to World War I*. Figure 9 offers a generalized view of North Carolina's cultural periods.

Paleoindian Period

The Paleoindian Period, most commonly dated from about 12,000 to 10,000 B.P., is evidenced by basally thinned, side-notch projectile points; fluted, lanceolate projectile points, side scrapers, end scrapers; and drills (Coe 1964; Michie 1977; Williams 1968). Oliver (1981, 1985) has proposed to extend the Paleoindian dating in the North Carolina Piedmont to perhaps as early as 14,000 B.P., incorporating the Hardaway Side-Notched and Palmer Corner-Notched types, usually accepted as Early Archaic, as representatives of the terminal phase. This view, verbally suggested by Coe for a number of years, has considerable technological appeal.[2] Oliver suggests a continuity from the Hardaway Blade through the Hardaway-Dalton to the Hardaway Side-Notched, eventually to the Palmer Side-Notched (Oliver 1985:199-200). While convincingly argued, this approach is not universally accepted.

The Paleoindian occupation, while widespread, does not appear to have been intensive. Artifacts are most frequently found along major river drainages, which Michie interprets to

[1] In Cumberland County there is good evidence that occupation spread up creeks, especially Rockfish Creek, with numerous small villages established on the banks of Cross Creek and even further upstream along the Cape Fear. One historic village which documents this settlement pattern is Cross Creek. Situated 1.6 km west of the Cape Fear River, on the banks of Cross Creek, the village was the terminus for river traffic and the point of origin for roads being built into the interior. By 1770 it contained about a hundred structures, including grist mills, a tannery, a brewery, and a sawmill.

[2] While never discussed by Coe at length, he did observe that many of the Hardaway points, especially from the lowest contexts, had facial fluting or thinning which, "in cases where the side-notches or basal portions were missing, . . . could be mistaken for fluted points of the Paleo-Indian period" (Coe 1964:64). While not an especially strong statement, it does reveal the formation of the concept. Further insight is offered by Ward's (1983:63) all too brief comments on the more recent investigations at the Hardaway site (see also Daniel 1992).

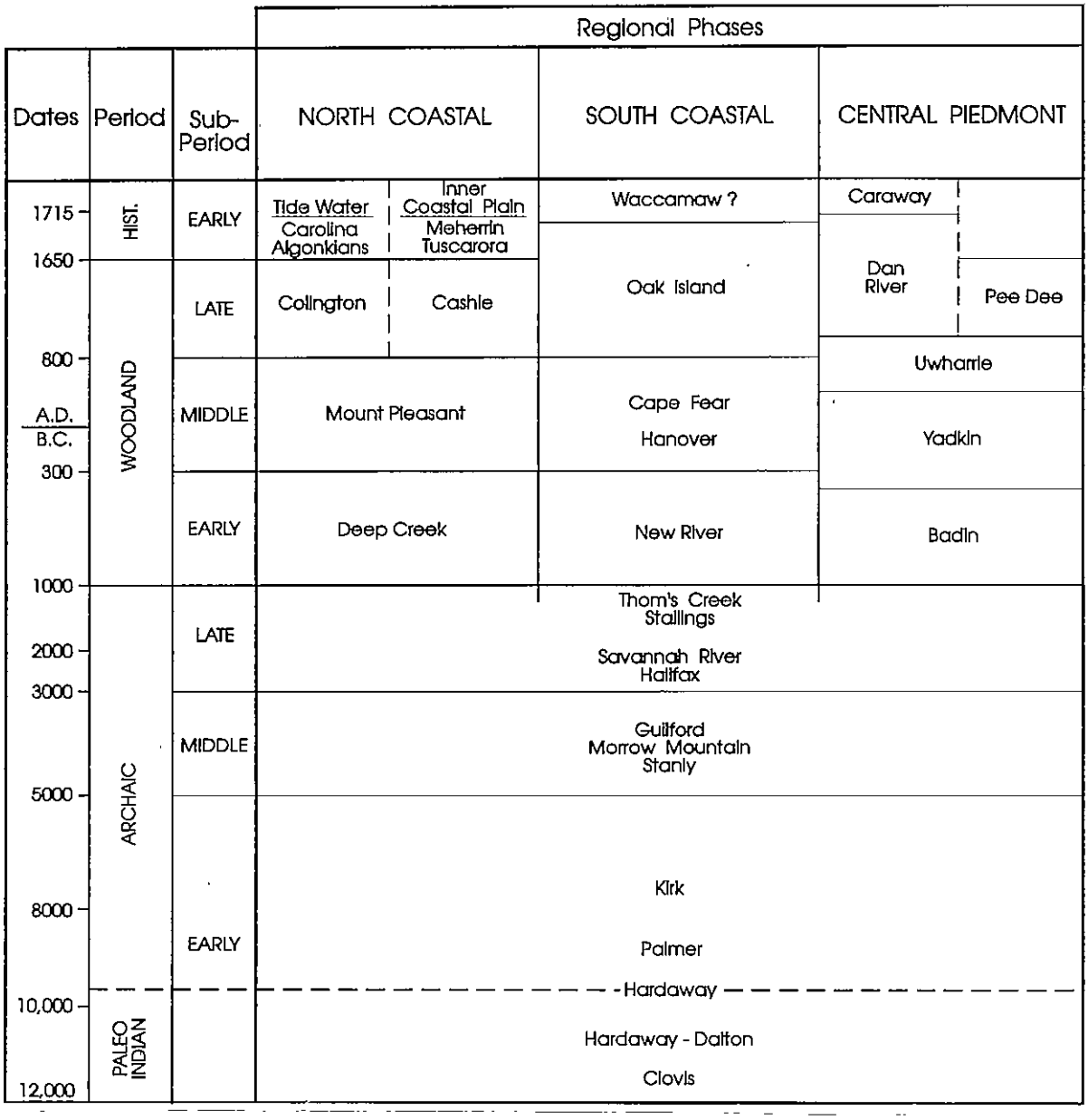

Figure 9. A generalized cultural sequence for eastern North Carolina (partially adapted from Coe 1964: Figure 116 and Phelps 1983:Figure 1.2).

support the concept of an economy "oriented toward the exploitation of now extinct mega-fauna" (Michie 1977:124). Survey data for Paleoindian tools, most notably fluted points, is rather dated for North Carolina (Brennan 1982; Peck 1988; Perkinson 1971, 1973; cf. Anderson 1990b). In spite of this, the distribution offered by Anderson (1992:Figure 5.1) reveals a rather general, and widespread, occurrence throughout the region. Phelps (1983:21) states that settlement patterning in the North Carolina Coastal Plain is impossible to meaningfully discuss since there have been so few recorded sites, but speculates on the presence of base camps along major streams, with special activity sites in the uplands. An alternative is the model tracking the replacement of a high technology forager (or HTF) adaptation by a "progressively more generalized band/microband foraging adaption" accompanied by increasingly distinct regional traditions (perhaps reflecting movement either along or perhaps even between river drainages) (Anderson 1992b:46).

Distinctive projectile points include lanceolates such as Clovis, Dalton, perhaps the Hardaway, and Big Sandy (Coe 1964; Phelps 1983; Oliver 1985) (Figure 10). A temporal sequence of Paleoindian projectile points was proposed by Williams (1965:24-51), but according to Phelps (1983:18) there is little stratigraphic or chronometric evidence for it. While this is certainly true, a number of authors, such as Anderson (1992a) and Oliver (1985) have assembled impressive data sets. We are inclined to believe that while often not conclusively proven by stratigraphic excavations (and such proof may be an unreasonable expectation), there is a large body of circumstantial evidence. The weight of this evidence tends to provide considerable support.

Unfortunately, relatively little is known about Paleoindian subsistence strategies, settlement systems, or social organization (see, however, Anderson 1992b for an excellent overview and synthesis of what is known). Generally, archaeologists agree that the Paleoindian groups were at a band level of society (see Service 1966), were nomadic, and were both hunters and foragers. While population density, based on isolated finds, is thought to have been low, Walthall suggests that toward the end of the period, "there was an increase in population density and in territoriality and that a number of new resource areas were beginning to be exploited" (Walthall 1980:30).

According to Braley (1990:5) there are a modest number of late Paleoindian sites on Fort Bragg. Of the 196 sites that Loftfield (1979) found which produced diagnostic points, only 26 contained Hardaway, Palmer, or Big Sandy artifacts. Abbott et al. (1995:8) also identified several Paleoindian points from contexts in the near vicinity of Fort Bragg.

Archaic Period

The Archaic Period, which dates from 10,000 to 3,000 B.P.[3], does not form a sharp break with the Paleoindian Period, but is a slow transition characterized by a modern climate and an increase in the diversity of material culture. Associated with this is a reliance on a broad spectrum of small mammals, although the white tailed deer was likely the most commonly exploited animal. Archaic period assemblages, exemplified by

[3] The terminal point for the Archaic is no clearer than that for the Paleoindian and many researchers suggest a terminal date of 4,000 B.P. rather than 3,000 B.P. There is also the question of whether ceramics, such as the fiber-tempered Stallings ware, will be included as Archaic, or will be included with the Woodland. Oliver, for example, argues that the inclusion of ceramics with Late Archaic attributes "complicates and confuses classification and interpretation needlessly" (Oliver 1981:20). He comments that according to the original definition of the Archaic, it "represents a preceramic horizon" and that "the presence of ceramics provides a convenient marker for separation of the Archaic and Woodland periods (Oliver 1981:21). Others would counter that such an approach ignores cultural continuity and forces an artificial, and perhaps unrealistic, separation. Sassaman and Anderson (1994:38-44), for example, include Stallings and Thom's Creek wares in their discussion of "Late Archaic Pottery." While this issue has been of considerable importance along the Carolina and Georgia coasts, it has never affected the Piedmont, which seems to have embraced pottery far later, well into the conventional Woodland period. The importance of the issue in the Sandhills, unfortunately, is not well known.

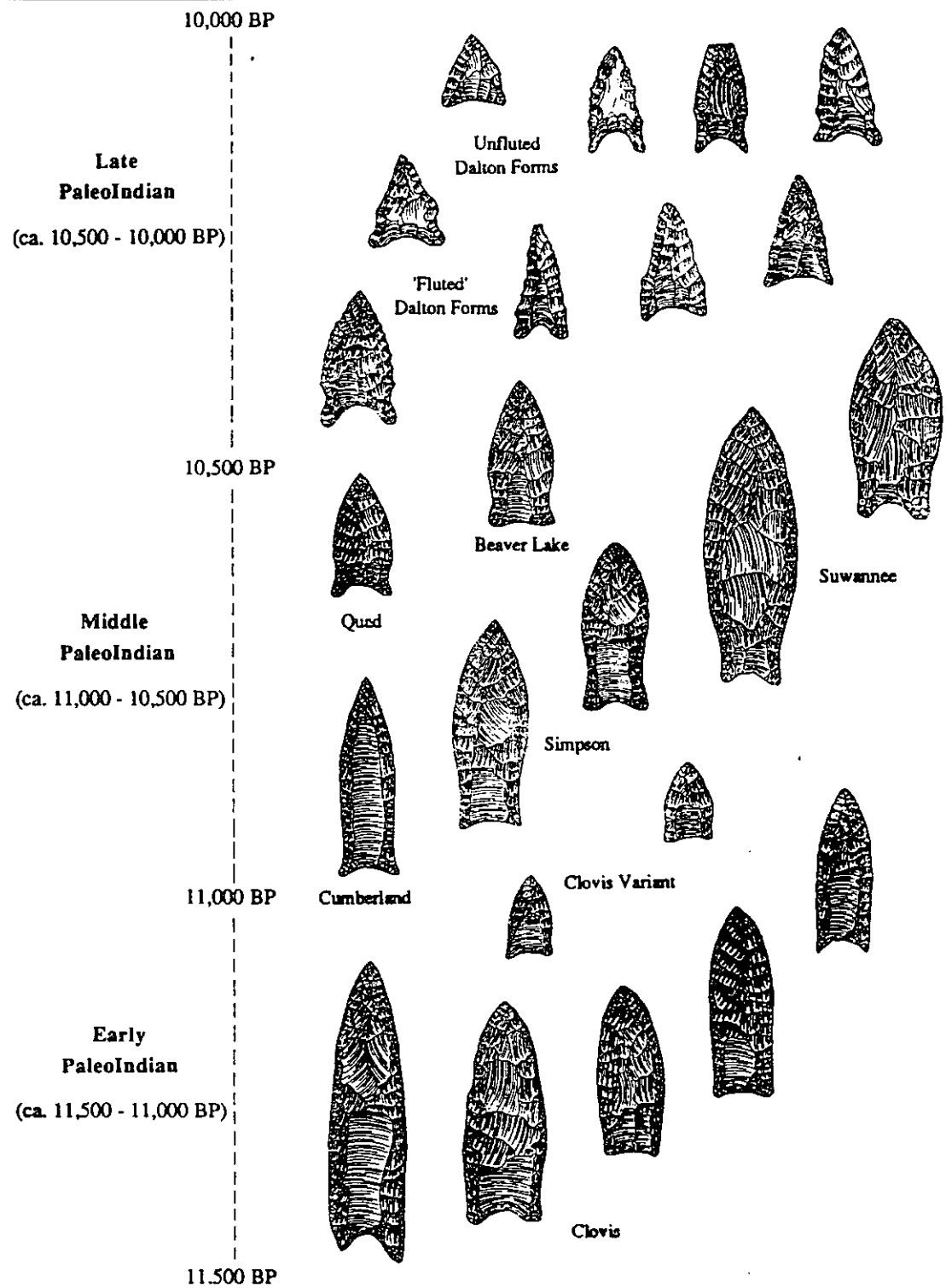

Figure 10. Diagnostic Paleoindian project points and suggested chronology for Georgia and the Carolinas (adapted from Anderson 1992a:Figure 3.1).

corner-notched and broad-stemmed projectile points (Figure 11), are fairly common, perhaps because the swamps and drainages offered especially attractive ecotones.

Loftfield's (1979:54) data suggests that there was a noticeable population increase from the Paleoindian (with five identified components in his study) into the Early Archaic (where at least 42 components were isolated). This corresponds with findings by other researchers (see, for example, Ward 1983:65). This has tentatively been associated with a greater emphasis on foraging. Diagnostic Early Archaic artifacts include the Kirk Corner Notched point. As previously discussed, Palmer points may be included with either the Paleoindian or Archaic period, depending on theoretical perspective. As the climate became hotter and drier than the previous Paleoindian period, resulting in vegetational changes, it also affected settlement patterning as evidenced by a long-term Kirk phase midden deposit at the Hardaway site (Coe 1964:60). This is believed to have been the result of a change in subsistence strategies.

Settlements during the Early Archaic suggest the presence of a few very large, and apparently intensively occupied, sites which can best be considered base camps. Hardaway might be one such site. In addition, there were numerous small sites which produce only a few artifacts — these are the "network of tracks" mentioned by Ward (1983:65). The base camps produce a wide range of artifact types and raw materials which has suggested to many researchers long-term, perhaps seasonal or multi-seasonal, occupation. In contrast, the smaller sites are thought of as special purpose or foraging sites (see Ward 1983:67).

Middle Archaic (8,000 to 6,000 B.P.) diagnostic artifacts include Morrow Mountain, Guilford, Stanly and Halifax projectile points. Middle Archaic diagnostic artifacts were found to occur on 60 of the 196 sites found by Loftfield (1979; see also Braley 1990:7). Phelps (1983:25) also notes that the gradual increase from Paleoindian to Archaic in the Coastal Plain seems to peak during the Middle Archaic Morrow Mountain phase.

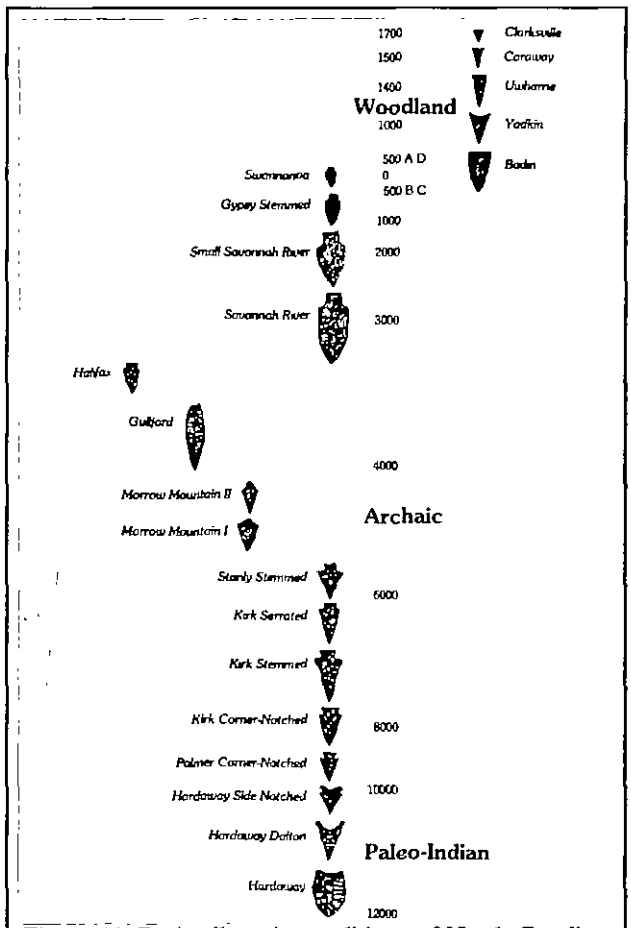

Figure 11. Projectile point traditions of North Carolina (adapted from Oliver 1985:Figure 10-8).

Much of our best information on the Middle Archaic comes from sites investigated west of the Appalachian Mountains, such as the work by Jeff Chapman and his students in the Little Tennessee River Valley (for a general overview see Chapman 1977, 1985a, 1985b). There is good evidence that Middle Archaic lithic technologies changed dramatically. End scrappers, at times associated with Paleoindian traditions, are discontinued, raw materials tend to reflect the greater use of locally available materials, and mortars are initially introduced. Associated with these technological changes there seem to also be some significant cultural modifications. Prepared burials begin to more commonly occur and storage pits are identified. The work at Middle Archaic river valley sites, with their evidence of a diverse

floral and faunal subsistence base, seems to stand in stark contrast to Caldwell's Middle Archaic "Old Quartz Industry" of Georgia and the Carolinas, where axes, choppers, and ground and polished stone tools are very rare.

The available information has resulted in a variety of competing settlement models. Some argue for increased sedentism and a reduction of mobility (see Goodyear et al. 1979:111). Ward argues that the most appropriate model is one which includes relatively stable and sedentary hunters and gatherers "primarily adapted to the varied and rich resource base offered by the major alluvial valleys" (Ward 1983:69). While he recognizes the presence of "inter-riverine" sites, he discounts explanations which focus on seasonal rounds, suggesting "alternative explanations . . . [including] a wide range of adaptive responses." Most importantly, he notes that:

> the seasonal transhumance model and the sedentary model are opposite ends of a continuum, and in all likelihood variations on these two themes probably existed in different regions at different times throughout the Archaic period (Ward 1983:69).

Others suggest increased mobility during the Archaic (see Cable 1982), Sassaman (1983) has suggested that the Morrow Mountain phase people had a great deal of residential mobility, based on the variety of environmental zones they are found in and the lack of site diversity. The high level of mobility, coupled with the rapid replacement of these points, may help explain the seemingly large numbers of sites with Middle Archaic assemblages. Curiously, the later Guilford phase sites are not as widely distributed, perhaps suggesting that only certain micro-environments were used (Braley 1990; cf. Ward [1983:68-69] who would likely reject the notion that substantially different environmental zones are, in fact, represented).

Recently Abbott et al. argue for a combination of these models, noting that the almost certain increase in population levels probably resulted in a contraction of local territories. With small territories there would have been significantly greater pressure to successfully exploit the limited resources by more frequent movement of camps. They discount the idea that these territories could have been exploited from a single base camp without horticultural technology. Abbott and his colleagues conclude, "increased residential mobility under such conditions may in fact represent a common stage in the development of sedentism" (Abbott et al. 1995:9).

From excavations at a Sandhills site in Chesterfield County, South Carolina Gunn and his colleague (Gunn and Wilson 1993) offer an alternative model for Middle Archaic settlement. He accepts that the uplands were desiccated from global warming, but rather than limiting occupation, this environmental change made the area more attractive for residential base camps. Gunn and Wilson suggest that the open, or fringe, habitat of the upland margins would have been attractive to a wide variety of plant and animal species.

Another point of some controversy is the idea that the groups responsible for the Middle Archaic Morrow Mountain and Guilford points were intrusive ("without any background" in Coe's words) into the North Carolina Piedmont, from the west, and were contemporaneous with the groups producing Stanly points (Coe 1964:122-123; Phelps 1983:23). Phelps, building on Coe, refers to the Morrow Mountain and Guilford as the "Western Intrusive horizon." Sassaman (1995) has recently proposed a scenario for the Morrow Mountain groups which would support this west-to-east time-transgressive process. Abbott and his colleagues, perhaps unaware of Sassaman's data, dismiss the concept, commenting that the shear distribution and number of these points "makes this position wholly untenable" (Abbott et al. 1995:9).

The Late Archaic, usually dated from 6,000 to 3,000 or 4,000 B.P., is characterized by the appearance of large, square stemmed Savannah River projectile points (Coe 1964). These people continued to intensively exploit the uplands much like earlier Archaic groups with, in North Carolina, the bulk of our data for this period coming from the Uwharrie region. At Fort Bragg 39 of the 196

sites contained Late Archaic components (Loftfield 1979), suggesting a leveling off, or even slight decline, from the earlier Middle Archaic. While the data must be viewed cautiously, they may provide some support to Phelps' (1983:25) contention that the Archaic population stabilized during the Morrow Mountain phase.

One of the more debated issues of the Late Archaic is the typology of the Savannah River Stemmed and its various diminutive forms. Oliver, refining Coe's (1964) original Savannah River Stemmed type and a small variant from Gaston (South 1959:153-157), developed a complete sequence of stemmed points that decrease uniformly in size through time (Oliver 1981, 1985). Specifically, he sees the progression from Savannah River Stemmed to Small Savannah River Stemmed to Gypsy Stemmed to Swannanoa from about 5000 B.P. to about 1,500 B.P. He also notes that the latter two forms are associated with Woodland pottery.

This reconstruction is still debated with a number of archaeologists expressing concern with what they see as typological overlap and ambiguity. They point to a dearth of radiocarbon dates and good excavation contexts at the same time they express concern with the application of this typology outside the North Carolina Piedmont (see, for a synopsis, Sassaman and Anderson 1990:158-162, 1994:35).

In addition to the presence of Savannah River points, the Late Archaic also witnessed the introduction of steatite vessels (see Coe 1964:112-113; Sassaman 1993), polished and pecked stone artifacts, and grinding stones. Some also include the introduction of fiber-tempered pottery about 4000 B.P. in the Late Archaic (for a discussion see Sassaman and Anderson 1994:38-44). This innovation is of special importance along the Georgia and South Carolina coasts, but seems to have had only minimal impact in North Carolina.

Although fiber-tempered pottery has been known from southeastern North Carolina since at least the late 1950s when it was collected from 31Cb4, it was not formally defined until South's 1960 survey of the coast (South 1976). Initially it was assumed to be limited to the South Carolina border area, but by the early 1970s Phelps was identifying specimens from the Greene County area (Phelps 1983:26). By the 1980s fiber-tempered wares were recognized from at least 38 sites scattered throughout the coastal plain of North Carolina. Phelps notes, however, that only what might be called Stallings Plain is found, suggesting that "the full-fledged ceramic series with its decorative types did not extend into the South Coastal region" (Phelps 1983:26). The pottery is typically associated with Savannah River Stemmed points, steatite pottery or disks, and grooved axes. The significance of the ware declines dramatically northward to the Tar drainage (Phelps 1983:Figure 1.4) and it is partially on this distribution that Phelps bases the development of two regions within the North Carolina coastal plain.

Fiber-tempered pottery has been reported from only two sites on Fort Bragg and only one site has produced Thom's Creek pottery (Braley 1990:9; Loftfield 1979). Robinson (1986:75) mentions that fiber-tempered pottery, while not common, is present and especially singles out 31Cd151 as worthy of attention.

There is evidence that during the Late Archaic the climate began to approximate modern climatic conditions. Rainfall increased resulting in a more lush vegetation pattern. The pollen record indicates an increase in pine which reduced the oak-hickory nut masts which previously were so widespread. This change probably affected settlement patterning since nut masts were now more isolated and concentrated. From research in the Savannah River valley near Aiken, South Carolina, Sassaman has found considerable diversity in Late Archaic site types with sites occurring in virtually every upland environmental zone. He suggests that this more complex settlement pattern evolved from an increasingly complex socio-economic system. While it is unlikely that this model can be simply transferred to the Sandhills of North Carolina without an extensive review of site data and micro-environmental data, it does demonstrate one approach to understanding the transition from Archaic to Woodland.

Woodland Period

As previously discussed, there are those who see the Woodland beginning with the introduction of pottery. Under this scenario the Early Woodland may begin as early as 4,500 B.P. and continued to about 2,300 B.P. Diagnostics would include the small variety of the Late Archaic Savannah River Stemmed point (Oliver 1985) and pottery of the Stallings and Thoms Creek series. These sand tempered Thoms Creek wares are decorated using punctations, jab-and-drag, and incised designs (Trinkley 1976). Also potentially included are Refuge wares, also characterized by sandy paste, but often having only a plain or dentate-stamped surface (Waring 1968). Others would have the Woodland beginning about 3,000 B.P. and perhaps as late as 2,500 B.P. with the introduction of pottery which is cord-marked or fabric-impressed and suggestive of influences from northern cultures.

Regardless, it is between 4,000 and 3,000 B.P. when Phelps (1983:26-27, Figure 1.2) notes that the coastal plain can be divided into a northern and southern region. Our attention will focus on the southern region, along with brief remarks on the adjacent Piedmont.

Along the southern coastal plain a northern-influenced ware which Loftfield (1976:149-154) terms New River is associated with the Early Woodland. Essentially identical to the Deep Creek pottery identified by Phelps (1983:29-31) for the north coastal area, this pottery is tempered with coarse sand making it feel sandy to the touch.[4] The pottery, according to Loftfield may be "thong-marked" (i.e., simple stamped), cord-marked, net-impressed, fabric-impressed, and plain (often smoothed). Phelps suggests subsuming the New River into Deep Creek "in order to standardize typology across the Coastal Plain" (Phelps 1983:31). This has apparently not attracted much support, although frankly neither has the use of Loftfield's New River type. One factor which certainly complicates such efforts is the near total absence of excavation data coupled with good radiocarbon dates (a problem admitted by Phelps [1983:32]). Little is known about possible cultural associations, although there is some limited evidence that at least some of the small variants of the Savannah River Stemmed may be found with Early Woodland materials. The large triangular Roanoke point (South 1959:146-148) is likely also associated with Early Woodland ceramics.

In spite of our near total ignorance of Early Woodland sites, many suggest that the subsistence economy was based primarily on deer hunting and fishing, with supplemental inclusions of small mammals, birds, reptiles, and shellfish. This is based on the continuation of a generalized Late Archaic pattern, which may or may not be appropriate.

Further to the west, in the Piedmont, the Early Woodland is marked by a pottery type defined by Coe (1964:27-29) as Badin.[5] This pottery is identified as having very fine sand in the paste with an occasional pebble. Coe identified cord-marked, fabric-marked, net-impressed, and plain surface finishes. Beyond this pottery little more is known about the makers of the Badin pottery as is known about those who made New River wares.

Somewhat more information is available for the Middle Woodland, typically given the range of about 2,300 B.P. to 1,200 B.P. The best data concerning Middle Woodland Coastal Zone assemblages comes from Phelps (1983:32-33) work in the north coastal region and can be only cautiously extended to either the southern coast or

[4] In North Carolina, as in South Carolina, type descriptions tend to be loosely written with attributes poorly defined. To further complicate typological issues, there is almost no petrographic or chemical studies of these wares. Consequently, descriptive references such as "sandy," "coarse," and "fine" are meant only as general statements.

[5] The ceramics suggest clear regional differences during the Woodland which seem to only be magnified during the later phases. Ward (1983:71), for example, notes that there "marked distinctions" between the pottery from the Buggs Island and Gaston Reservoirs and that from the south-central Piedmont.

the Sandhills. The pottery is his Mount Pleasant series which includes very coarse quartz temper and exhibits fabric-impressed, cord-marked, net-impressed, and plain surface treatments. Associated items include small varieties of the Roanoke Large Triangular points, Yadkin points, sandstone abraders, shell pendants, polished stone gorgets, celts, and woven marsh mats. Significantly, both primary inhumations and cremations are found. It seems to be characterized by a pattern of settlement mobility and short-term occupation. Phelps (1983), for example, notes a decrease in the number of small sites along the smaller tributary streams and an increase in the number of sites along major streams and estuaries. He suggests the presence of seasonal subsistence camps (focused on either coastal shellfish or riverine species further inland) coupled with sedentary villages. The shift in settlement patterns, according to Phelps, may be related "to increased dependence on domesticated plants" (Phelps 1983:35), a conclusion with very little support.

In the southern region the dominant pottery is either the Cape Fear or Hanover wares, although very little is known about the groups which produced these ceramics. The Cape Fear pottery is sand tempered and surface decorations include cord-marked, fabric-marked, net-impressed, and plain. Phelps equates the Cape Fear wares with his Mount Pleasant pottery. He notes that:

> the Cape Fear ceramic types described by South (1976:18) are essentially similar to the Mount Pleasant series and Haag's [1958] "grit-tempered," and both of these have been included in the Mount Pleasant definition to provide a comprehensive ceramic horizon across the Coastal Plain (Phelps 1983:35).

The Hanover pottery is distinguished by clay and sherd temper with some suggestion that the majority of the temper is composed of crushed sherds. The Hanover wares are fabric-impressed, cord-marked, and plain (see South 1976:16-18). Loftfield, rather than accepting South's Hanover type, chose to develop the Carteret Series (Loftfield 1976:154-157). Loftfield also offers a type description for the Onslow Series, a crushed quartz tempered ware with cord-marked and fabric-impressed surfaces. He noted, however, that Onslow pottery was found at only six sites and its chronological position, while placed in a Middle Woodland context between his Carteret and White Oak series, was poorly understood (Loftfield 1976:199). This pottery seems to have some superficial resemblance to the Piedmont Yadkin series (discussed below), but is rarely referred to in publications today.

One of the few distinctive features of the coastal plain (and Sandhills) Middle Woodland[6] appears to be the presence of low sand burial mounds. One of the most thorough overviews is offered by MacCord (1966), although Wilson (1982) offers a fresh review and a detailed assessment of one such mound. Artifacts are typically sparse, consisting of platform pipes, an occasional cord marked, sand-tempered sherd, celts, shell beads, copper beads, and a few triangular projectile points. Human remains include cremations, bundle burials, multiple burials, and flexed burials. The frequency of secondary burials suggest that a number of individuals were interred only after some form of reduction. Further complicating analyses, the human remains are frequently in very poor condition (the probable result of the acid soils and loose sands).

Wilson's (1982) study of the McFayden Mound, Bw°67, is particularly interesting since she

[6] Their association with the Middle Woodland, in many cases, is tenuous. Phelps, in fact, notes that he places them with his discussion of Cape Fear "because their content and occurrence elsewhere in the eastern Woodlands area" (Phelps 1983:35). There are some good reasons to suggest that they span a greater time period, perhaps into the Late Woodland. Wilson (1982:161-162), for example, presents some relatively strong evidence that at least one mound, Bw°67, may date as late as A.D. 1300. This is supported by the presence of a stone pipe comparable to those of found at Uhwarie phase sites, the presence of Adam's Creek pottery (possibly proto-historic), and cranial measurements which strongly resemble Piedmont Siouan populations.

was able to roughly calculate the life expectancy of the population — 19.9 years at birth. While this estimate seems low when compared to other prehistoric populations it is close agreement with that found at more Northern ossuaries. It was also possible to reconstruct the population size (which is, of course, dependent on the number of years of deaths represented in the mound. Relying on ethnohistoric data, Wilson suggests a population size of around 200 individuals, a seemingly reasonable estimate for Woodland models which might focus on macro-bands.

Some have suggested that this elaboration of burial customs suggests changes in social organization and that it also implies a more sedentary lifestyle. This, in turn, has lead to discussions of possible horticultural activities during the Middle Woodland. We concur with Ward's (1983:73) assessment that while there is certainly convincing evidence of horticulture in other regions, there is virtually no evidence of domesticated plant foods in North Carolina before, at the earliest, the Late Woodland.

Moving to the Piedmont the dominant Middle Woodland ceramic type is typically identified as the Yadkin series. Characterized by a crushed quartz temper the pottery includes surface treatments of cord-marked, fabric-marked, and a very few linear check-stamped sherds (Coe 1964:30-32). It is regrettable that several of the seemingly "best" Yadkin sites, such as the Trestle site (31An19) explored by Peter Cooper (Ward 1983:72-73), have never been published.

At Fort Bragg the Middle Woodland period (2,300 B.P. to 1,200 B.P.) is better represented than the earlier Woodland phase. Over 5% of the diagnostic sites produced Yadkin projectile points (Braley 1990). Undifferentiated Woodland artifacts were found at 115 (or 58.7%) of the 196 sites identified by Loftfield (1979) which suggests a great increase either in population or land use in this area (Braley 1990).

In some respects the Late Woodland (1,200 B.P. to 400 B.P.) may be characterized as a continuation of previous Middle Woodland cultural assemblages. While outside the Carolinas there were major cultural changes, such as the continued development and elaboration of agriculture, the Carolina groups settled into a lifeway not appreciably different from that observed for the previous 500-700 years. From the vantage point of Middle Savannah Valley Sassaman and his colleagues note that, "the Late Woodland is difficult to delineate typologically from its antecedent or from the subsequent Mississippian period" (Sassaman et al. 1990:14). This situation would remain unchanged until the development of the South Appalachian Mississippian complex (see Ferguson 1971).

Phelps would challenge this view, at least for the north coastal region, holding instead that "from A.D. 800 onward archaeological assemblages of the Late Woodland period in the North Coastal region can be related to ethnohistoric information and studies, thus providing the relative comfort of social and linguistic identities and the use of the direct historical approach" (Phelps 1983:36). In the north Phelps has done a superb job identifying the Carolina Algonkians (on the coast) and the Tuscarora (on the interior). The Algonkians are associated with the Colington phase and the associated pottery is shell-tempered with fabric-impressed, simple-stamped, plain, and incised surface treatments (Phelps 1983:36, 39-43; see also Gardner 1990; Phelps 1981. 1982, 1984). The inland Tuscarora appear to have been producing the Cashie series pottery, which is tempered with grit and pebbles and has fabric-impressed, simple-stamped, incised, and plain surfaces (Phelps 1983:37-39, 43-47).

For the south coastal region information is considerably less secure and ethnohistoric placement is confounded by a seeming mix of Siouan, Algonkian, and perhaps even Muskhogean linguistic and cultural traits. South offers a brief synopsis of enthohistoric data for the south coast (1976:5-8) and associates these mixed groups with his Oak Island complex, which Phelps (1983) adopts. Loftfield found similar evidence, although he chose to designate the material White Oak (Loftfield 1976:157-163). One of the earliest detailed south coastal studies was Loftfield's examination of the Uniflight site in Onslow County (Loftfield 1978). Loftfield found a late spring/early

summer period occupation and went on to suggest a seasonal adaptive cycle for the region which included dispersal to the estuaries. The predominant food remains, according to Loftfield, were shellfish. His excavations also revealed the village, with two houses discernable. They measured about 13 m in length and 6 m in width, with posts placed at 10 to 20 cm centers. Perhaps the best evidence associating the Oak Island wares with a specific ethnic group is the research conducted at a New Hanover County ossuary where the skeletal population was identified as Siouan (Coe et al. 1982).

Phelps (1983:48) notes that Loftfield's work has been concentrated adjacent to the presumed regional border and that additional work is necessary. He also remarks that it seems likely there may be different interior and coastal expressions for the Oak Island phase.

Moving into the Piedmont the Late Woodland is typically associated with small triangular points such as Uwharrie, Caraway, Pee Dee, and Clarksville (Coe n.d., 1964;49; Oliver 1985; South 1959:144-146). The characteristic pottery is the Uwharrie series which contains crushed quartz (one characteristic of which is its tendency to protrude through the wall of the pottery). This series included cord-marked and net-impressed surface treatments. The ware was described by Coe in the unpublished Poole site report (Coe n.d.).[7] This pottery appears to represent an evolution from the earlier Yadkin wares (Coe 1995:156). Of equal interest is a radiocarbon date of A.D. 1610, suggesting that this pottery lasted well into the protohistoric. Coe also notes that "Town Creek and other villages situated along the fall line between the Piedmont and the Coastal Plain seem to have formed a southern boundary for the production and use of Uwharrie ware," which he suggests was made by the ancestors of the Sara, Tutelo, Occaneechi, Saponi, and Keyauwee (Coe 1995:158). If this is correct, Uwharrie pottery may be exceedingly rare in the Fort Bragg area.

Unfortunately, excavated sites are as difficult to come by as well published and distributed type descriptions. Results of excavations at one of the more interesting Uwharrie site, Yd'1 (Coe 1972), has never been published. This site was first explored in 1957, at which time 28 human burials, two dog burials, and 42 features were recovered. In 1972 further work identified 83 features, although no additional burials were encountered. The features were classified as storage pits (with either straight walls and flat bottoms or bell-shaped), hearths, and refuse pits.

Moving from the Late Woodland into the proto-historic period at least some of the clouds surrounding the Piedmont dissipate, largely as the result of Wilson's (1983) extraordinary efforts to make sense out of nearly 50 years of confusion. There is some considerable evidence that the descendant of the Uwharrie pottery is the Dan River Series (Lewis 1951:242-259; Gardner 1980:54-55; Wilson 1983:249-267, 270-277, 282-296). One of the more interesting conclusions of Wilson's work is that:

> the pottery from the Catawba River during the Late Prehistoric period is markedly different from that of the Dan River region. Bowl forms, surface finishes and decorations differ significantly between the two areas. The presence of burnished and complicated stamped surfaces, cazuella and hemispherical bowl forms, the use of circular reed punctations to create "pseudo-nodes," and applique rim strips, all illustrate the direct influence that emanated from the Pee Dee, and Pee Dee related, culture (cf. Reid 1965, 1967) of the Wateree River in South Carolina, and the Little River section of the Pee Dee River in south-central North

[7] This study was intended to be published under a monograph series entitled, *University of North Carolina Laboratory of American Archaeology Publications*, but was never completed. The work was conducted in 1936, although the ensuing report is undated.

> Carolina. . . . An attempt to incorporate these foreign modes of surface finish, vessel shape and decoration, similar to that illustrated in the 31Id31 material, is not evidenced at this early date in the Dan River assemblage. The differences between the Dan River and the Catawba River collections in the placement of decorations, the decorative elements that occur, and the association of these designs with vessel forms and surface finish, underscores this interaction dichotomy (Wilson 1983:315).

Curiously, South (1972) makes a somewhat similar observation for the coastal plain linguistic groups, noting considerable cultural attributes cross-cutting the historic Muskhogean and Siouan linguistic boundary. Archaeology at the Payne site in neighboring Moore County also found evidence of possible interaction between Pee Dee and Siouan cultures. Both Pee Dee and Uwharrie pottery were found at the site, possibly suggesting an intrusion of the South Appalachian Mississippian into this otherwise seemingly Siouan village. Further work at such border sites may help explain the introduction and use of corn by Siouan groups as well as the acquisition of a carved paddle stamped pottery tradition (Mountjoy 1989:19-20).

Widmer (1975) and Loftfield (1979) have suggested that settlement patterns on the Inner Coastal Plain did not change from the Archaic period onward, because it was believed that the nutrient deficient soils were not well suited for agriculture. Braley (1989) found, however, that the Late Woodland period sites at Fort Bragg do exhibit differences from the earlier period since there were more Woodland sites than any other type and because there were minor, but statistically significant differences in the sizes of upland and lowland Woodland sites. Although agriculture may not have been a significant aspect of Late Woodland life, the populations appear to have become more sedentary and the lowland, river-oriented terrain took on greater importance (Braley 1990:12).

South Appalachian Mississippian

The Pee Dee culture was defined through the excavations of Joffre Coe at Town Creek which is located about 65 km west of Fort Bragg (Coe 1995; Reid 1967). The site, generally accepted to represent a northern intrusion of a Mississippian chiefdom, was originally dated from about A.D. 1550 to 1750, although more recent analyses suggests a date more likely between A.D. 900 and 1400 (Coe 1995:159).

Braley (1990) indicates that Pee Dee ceramics, which are typically diagnostic of the Mississippian period, are lacking at Fort Bragg. The lack of Pee Dee ceramics suggest that the prehistoric or proto-historic societies of the Fort Bragg area were relatively unaffected by these cultural events (Braley 1990:12). It is also possible that areas which would typically contain large Mississippian sites were not examined by Loftfield to any degree. Large river terraces associated with the Lower Little River may not have contained many fire breaks or other exposures to provide easy discovery. It is possible that future work in these areas will provide evidence for Mississippian occupation.

Historic Overview

It was nearly a century after the failure of the Roanoke Island colony in the 1580s before a permanent, effective settlement of North Carolina was begun. The colonization of North Carolina was not well promoted by the English because its shores were not easily accessible. They, therefore, turned their attention toward Charleston and the Chesapeake region. As a result, North Carolina settlers most often came over land by way of other colonies such as South Carolina, Virginia, and Pennsylvania (Meyer 1961:69-71). These settlers were described as the "dregs and gleanings of all the other English Colonies" (McCusker and Menard 1986:170).

The only river navigable by sea-going ships was the Cape Fear, but it was not utilized until the 1720s. This was primarily due to two reasons: the Tuscarora Indians which occupied the region were not subdued until about 1715 and during the 1710s

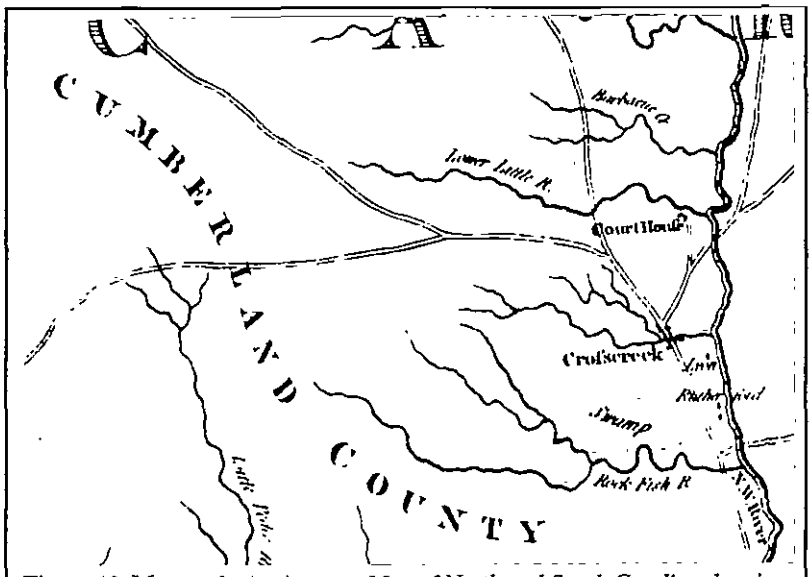

Figure 12. Mouzon's *An Accurate Map of North and South Carolina* showing the Fort Bragg area in 1775.

pirates controlled the Cape Fear and used it as a base of operations (Rankin 1989; Schonhorn 1972:137). Two cities developed in the 1720s at the mouth of the Cape Fear (Brunswick and Wilmington) which helped to provide a viable transportation and distribution network. By 1724, the land office for the Cape Fear region opened and settlement began to take place along the river. By the 1730s Scottish Highlanders began to settle the Cape Fear region near present day Fayetteville (Meyer 1961:71-72).

Lefler and Newsome (1973) state that there were a number of Ulster Scots (or Scotch-Irish) who also settled the area although it appears that the bulk of their grants and purchases were in present day Sampson and Duplin counties. Other Ulster Scot settlements were on the Yadkin, Catawba, and Eno rivers. Oates (1972:14) states that there was an Irish colony on the upper Northeast Cape Fear in 1736, but does not provide details.

It is interesting to note that the Highlander culture was so dominant and persistent in the area that in 1828 a tourist noted that the post office had to hire a clerk who could speak both English and Gaelic (Ross 1965:300). Oates (1972:621) notes that even up to the Civil War era that there were a few surviving Gaelic speaking inhabitants. The Longstreet Church cemetery, located about 3 km east of the project area contains at least one antebellum epitath in Gaelic (Kern and Boyko 1996; Ross 1965:300).

Of the most thorough explorations of the importance of British folkways in the development of the American culture is Hacket's (1989) *Albion's Seed* in which he

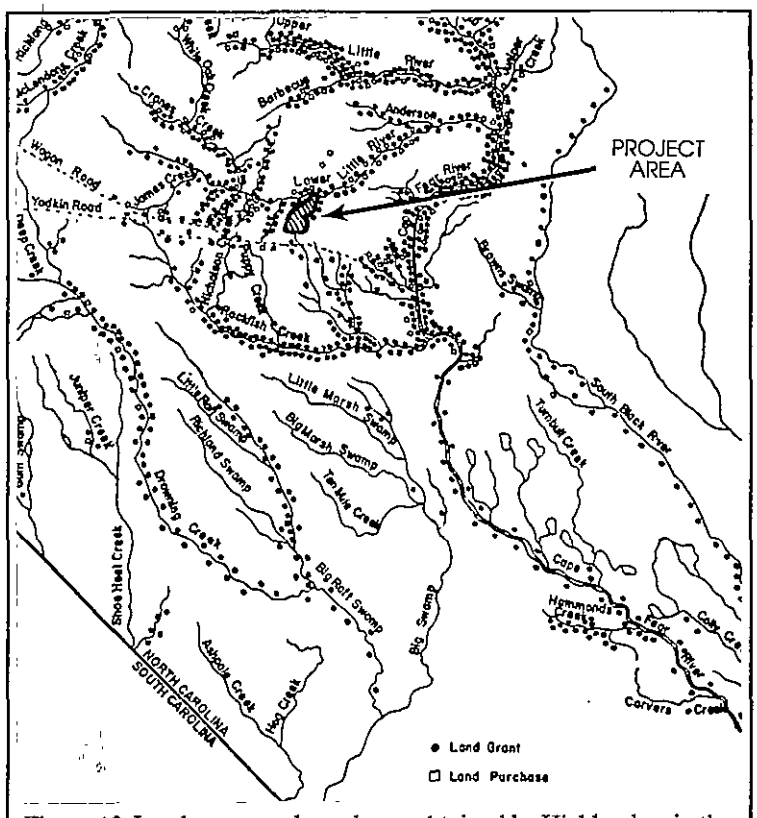

Figure 13. Land grants and purchases obtained by Highlanders in the project areabetween 1733 and 1775 (adapted from Meyer 1961:Map VIII).

explores the four principal migrations. While the Highland Scots is not one of these, his brief comments are worth repeating:

> another colonial culture developed in North Carolina's Cape Fear Valley, where Highland Scots began to arrive circa 1732. Many followed after the '45 Rebellion, and by 1776 their numbers were nearly as large as the white population in the South Carolina low country. Other ethnic groups also settled in the Cape Fear Valley, but so dominant were highlanders that Gaelic came to be spoken in this region even by people who were not Scots. . . . Even in the twentieth century, the Cape Fear people sent to Scotland for ministers, who were required to wear the kilt, play the pipes, and preach in Gaelic.
>
> The political history of the culture was very different from its border neighbors. During the American Revolution the borderers were mostly Whigs; Scottish highlanders were mainly Tory. In the new republic, the backsettlers tended to vote Democratic-Republican, and the highlanders of the Cape Fear Valley voted Federalist. Historian Duane Meyer writes that these people were "remarkedly consistent in choosing the losing side." They never became part of the solid south; in 1900 they cast their ballots for McKinley rather than Bryan. Here was another culture that preserved its separate identify into the twentieth century (Hacket 1989:818-819).

While during the early period settlement grew up along the rivers and creeks, the community of Argyle grew up along an early road which closely follows the alignment of modern-day Longstreet Road (just south of the project area). However, road-oriented settlement was unusual since much of the sandy upland soils were unsuitable for productive farming. According to Hudson (1984:53) the Blaney-Gilead-Lakeland soil association which dominates the north half of Hoke County is not classified by the U.S. Department of Agriculture as prime farmland.[8] These soils are also not listed as being state or locally important farmland, which means while not prime farmland, they are suited to producing crops economically only when managed according to modern farming methods (Hudson 1984:53). It seems likely that the Argyle community was more of a mercantile district.

Cumberland County, which incorporated portions of present day Hoke County (including the project area) was established in 1754 (Corbitt 1950). The first settlement took place near the mouth of Cross Creek and by 1760 the settlement was formally set apart (Figure 12). In 1762 the town of Campbelltown was established near the Cross Creek settlement, and in 1778 the two towns were combined. In 1783 the name was changed to Fayetteville (Lefler and Powell 1973:92). The town is situated on the west bank of the Cape Fear River at the head of its navigable point. Wilmington is 192 km by water, making Fayetteville's position, both in relation to Wilmington and to the interior valuable during the early historic period.

During the early half of the eighteenth century, settlement in the area was primarily along the Cape Fear river, but as these areas filled up settlement began to occur on the larger streams. Land grants and purchases secured by Highlanders between 1733 and 1775 are illustrated in Figure 13, showing that by the end of the colonial period the project area was well settled, at least along the waterways.

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[8] Prime farmland is defined as containing soils that, "are best suited to producing food, feed, forage, fiber, and oilseed crops. Such soils have qualities that are favorable for the economic production of sustained high yields of crops" (Hudson 1984:53).

The large, vast tracts of long leaf pine spurred on the production of naval stores during the colonial period. These forest resources also led the people of the Cape Fear region to produce items such as lumber, barrels, and other wood products. Crops included corn, rice and other grains. In addition, livestock were raised to supplement the income of the people (Lefler and Powell 1973:93; see also Hill 1983, and McLean and Sellon 1978).

The growth and expansion of the backcountry during the Proprietary period after 1750 created a number of problems including the creation of new counties and equal representation in the legislature. The backcountry citizens complained bitterly about eastern domination since planter aristocracy in the east dominated the control of the provincial government. The unit of representation was the county and there were far more counties in the east than in the rapidly growing west. As population increased in the backcountry, the legislature created more counties in the west, but also created additional counties in the east to guarantee that control would not be lost to the back country. There were nine boroughs in the state and only two of these (Salisbury and Hillsborough) were in the Piedmont. The rest (Bath, Brunswick, Edenton, New Bern, Campbelltown, Halifax, and Wilmington) were in the east. Tension between east and west mounted in 1766 by the passage of an act to establish a permanent capital. The new capital was an eastern borough — New Bern (Lefler and Powell 1973:223-224).

Out of this tension grew a backcountry movement known as the Regulator movement. This name was adopted because their main goal was to obtain the right to regulate their own government. A number of incidents occurred including attacks on court officials in Anson and Johnston counties, and disorders in Rowan and Edgecombe counties. This movement was interrupted by the American Revolution and its aftermath (Lefler and Newsome 1973:236-239).

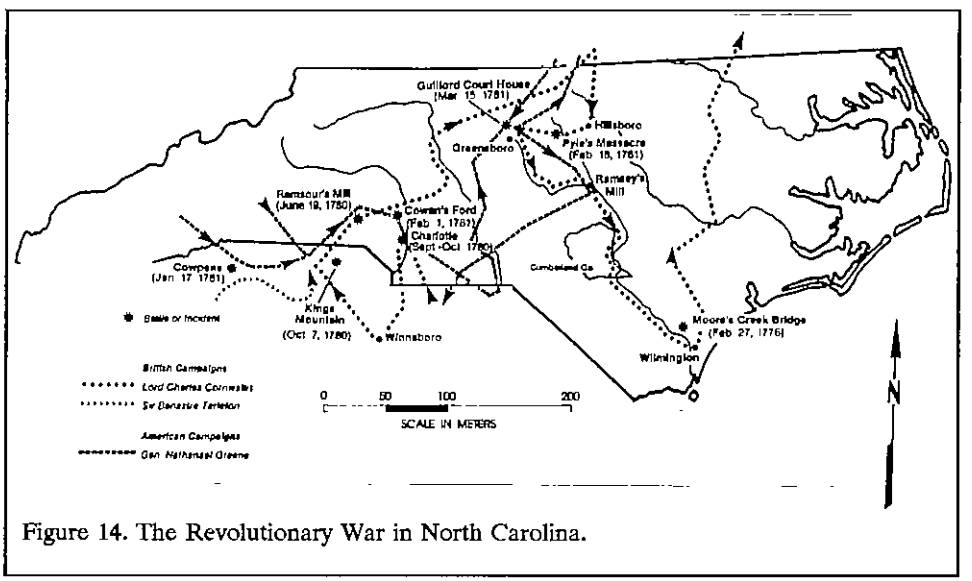

Figure 14. The Revolutionary War in North Carolina.

Cross Creek did see some minor action during the war. Governor Martin who had previously fled his office due to lack of British military support, worked out a plan for the British conquest of North Carolina. Martin was to raise approximately 9,000 Loyalists. Lord Cornwallis was to sail from Ireland with seven regiments of British regulars and take command of both groups which were to combine in the Wilmington-Brunswick area by mid-February of 1776. In January of that year the plan was approved. On January 10, Governor Martin issued a proclamation asking all loyal subjects to "unite and suppress the rebellion" in North Carolina. In mid-February 1,600 Highlanders led by Donald McDonald were assembled at their rendezvous at Cross Creek and then began their march toward Wilmington. Colonel James Moore, who directed the Whig forces, was determined to keep the enemy from reaching the port. A secondary objective was to take possession of Cross Creek.

To achieve these goals, Moore marched his forces to Elizabeth Town; Colonel Alexander Lillington and Colonel James Ashe were ordered to reinforce Caswell and secure Moore's Creek Bridge, 29 km north of Wilmington since the Loyalists would have to cross this bridge to reach Wilmington (Figure 14).

The Whig forces reached the bridge before the Loyalists and set a number of traps which made crossing the bridge difficult and added confusion to the ranks. For three minutes the Loyalists were swarmed with swan-shot and musket fire. Soon the battle was over with an overwhelming Whig victory (Lefler and Powell 1973:275-278).

Two events which directly affected the Fort Bragg reservation occurred in 1781 as Lord Cornwallis retreated through Cumberland County on his way to Wilmington from Guilford Courthouse, and when the conflicting loyalties of local Whigs and Tories resulted in the Piney Bottom Massacre.

As Cornwallis was being pursued by Colonel Henry Lee he passed along the edge of Fort Bragg along the Lower Little River. Having no provisions left, the soldiers began to forage the area of Cumberland County. Cornwallis and his troops crossed into what is now Fort Bragg at Monroe's Bridge. While his troops continued on their way, local tradition has it that Cornwallis diverged from the group and headed to Malcolm Smith's house in the Argyle area on present day Longstreet Road where he visited (Nye n.d.:16-21). Unfortunately, this visit is based primarily on local lore.

The Piney Bottom Massacre occurred on August 4, 1781 as a result of a surprise attack on the Whigs by local Tories lead by John McNeill (Nye n.d.:22-26). Seven men were killed, one was wounded, and a number of houses were pillaged or burned. Nye (n.d.) locates the massacre site where Morganton Road crosses Piney Bottom Creek although Wicker (1966) disputes this location since Morganton Road was not in place until 1794. He suggests that the massacre occurred nearer to what is today Holland Drop Zone.

The war left North Carolina in a bad situation. It was in debt, its money was worthless, and its English markets were lost. Most of the state's population led a simple, low-level economic existence which made the effects of the war more acute than in surrounding, richer states. Gradually export trade reached a new high. New England replaced Britain as the major customer for goods. Major exports included corn, lumber, and tobacco. Population steadily increased after the war. Census reports from 1790 to 1820 gave the population as 393,751; 478,103; and 638,829 (Lefler and Newsome 1973:2660270).

During the antebellum period there was a remarkable increase in the state's two major cash crops—tobacco and cotton. Agricultural expansion and prosperity were partly due to a systematic movement to improve farming methods and rural life which resulted in the publication of journals such as the *Carolina Cultivator* and *North Carolina Planter* (Lefler and Newsome 1973:390-392). In 1840 the county's products were listed as 6,037 bushels of wheat, 16,577 bushels of oats, 3,019 bushels of rye, 291,630 bushels of corn, 459,747 pounds of cotton, 16,800 pounds of wool, 1,794 barrels of turpentine, and 78,540 dollars worth of lumber (Wheeler 1925:124).

As expressed in the quantity of turpentine and lumber listed above, naval stores were important to the area economy. North Carolina ranked number one as the world's foremost producer of naval stores from 1720 to 1870 (Lefler and Newsome 1973:97). The longleaf pine, which was plentiful in the study area, was the basic resource needed for the industry. Many farmers would produce naval stores during slow agricultural seasons or in bad weather and operations ranged from small to large. On large operations, labor was organized on the task system, much like that found at the Carolina rice plantations.

Frederick Law Olmsted passed through this area on a stage coach road from Raleigh to Fayetteville in 1853. His account of the terrain was precise, like that of an environmental surveyor:

> the road was a mere opening through a forest of the long-

> leafed pine; the trees from eight to eighteen inches in diameter, with straight trunks bare for nearly thirty feet, and their evergreen foliage forming a dense dark canopy at that height, the surface of the ground undulating with long swells, occasionally low and wet. In the latter case there was generally a mingling of deciduous trees and a watercourse crossing the road, with a thicket of shrubs. The soil sandy, with occasionally veins of clay; the latter more commonly in the low ground, or in the descent to it. Very little grass, herbage, or underwood; and the ground covered, except in the road, with fallen pine-leaves. Every tree, on one, two, or three sides, was scarified for turpentine. In ten miles, I passed half a dozen cabins, one or two small clearings, in which corn had been planted, and one turpentine distillery (Olmsted 1953:138).

His observations concerning many of the region's people were no less sharp:

> The negroes employed in the turpentine business, to which during the last week I have been giving some examination, seem to me to be unusually intelligent and cheerful, decidedly more so than most of the white people inhabiting the turpentine forest. Among the latter there is a large number, I should think a majority, of entirely uneducated, poverty-stricken vagabonds. . . . They are poor, having almost no property but their own bodies; and the use of these, that is, their labour, they are not accustomed to hire out statedly and regularly, so as to obtain capital by wages, but only occasionally by day or job, when driven to it by necessity. A family of these people will commonly hire, or "squat" and build, a little log cabin, so made that it is only a shelter from the rain, the sides not being chinked, and having no more furniture or pretension to comfort than is commonly provided a criminal in the cell of a prison. They will cultivate a little corn, and possibly a few roods of potatoes, cow-peas, and coleworts. They will own a few swine, that find their living in the forest (Olmsted 1953:146-147).

What he described as North Carolina's "proverbial reputation for the ignorance and torpidity of her people" he attributed to "the general poverty of the soil in the eastern part of the state," certainly a reference to the Sandhills and Inner Coastal Plain (Olmsted 1953:148).

Cumberland County experienced a slow population growth. In 1790 there were 8,671 inhabitants including 6,407 whites, 2,181 slaves, and 83 free blacks. The greatest jump in population occurred between 1810 and 1820 when the population grew from 9,385 to 14,446 with a 29% increase in the white population, an 83% increase in the free black population, and 41% increase in the slave population. This increase is probably due to the expansion and prosperity of agriculture. However, given the poor soils found in the Fort Bragg area, this population growth probably occurred elsewhere in the county, perhaps closer to Fayetteville.

There was an increase in manufacturing establishments during the antebellum as well. From 1850 to 1860 these establishments increased from 2,663 to 3,689. In 1860 Cumberland County had 84 turpentine distilleries, seven cotton mills, and three iron works (Lefler and Newsome 1973:397-398). Although notable economic advances had occurred in the state after 1840, North Carolina was still relatively poor by the time of the Civil War. It was rural and isolated, and its coast was dangerous and without a good port (Lefler and Newsome 1973:402). Cumberland County's population in

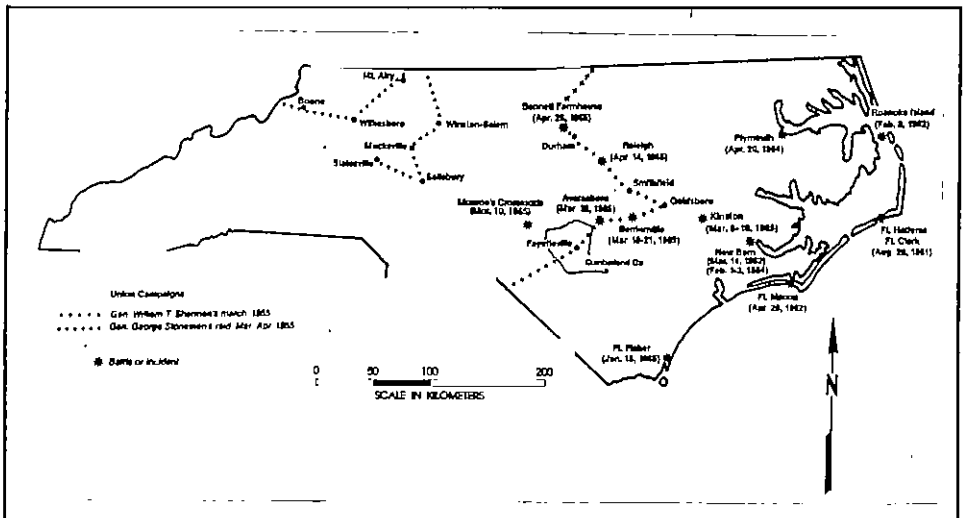

Figure 15. The Civil War in North Carolina.

1850 was 12,447 whites, 7,217 slaves; and 946 freedmen (Wheeler 1925:124).

The only military action to take place in the project area during the Civil War was during Sherman's march in 1865. While Sherman's army was moving north from Savannah to meet Grant's army in Virginia, they passed through Fayetteville (Figure 15), destroying the Confederate Arsenal on March 11. This was one of the South's most important military depots (Barrett 1963:311-317; Lefler and Newsome 1973:459).

Immediately affecting the Fort Bragg reservation was the Battle of Monroe's Crossroads about 3 km west of the study area. A skirmish occurred early on March 10, 1865 when a surprise attack by Confederate forces was made on Charles Monroe's house where General H. Judson Kilpatrick of General William T. Sherman's army had set up his temporary headquarters (Barrett 1963:301-317; Nye n.d.:42-61). The battle took place in an area encompassing two plantations or farms — Rocky Mount and Green Springs. Although the attack initially favored the Confederates, the Federal troops rallied and retook the camp. Perhaps most importantly, by this time the war was already lost and the battle is little more than a footnote in the tragic conflict.

Immediately after the war, cotton prices peaked, causing many Southerners to plant cotton using free labor, in the hope of recouping losses from the war. The hiring of freedmen began immediately, with variable results. They began with a wage labor system established by the Freedmen's Bureau. Gradually owners turned away from wage labor contracts to two kinds of tenancy — sharecropping and renting. While very different, both succeeded in making land ownership very difficult, if not impossible, for the vast majority of Blacks. Sharecropping required the tenant to pay his landlord part of the crop

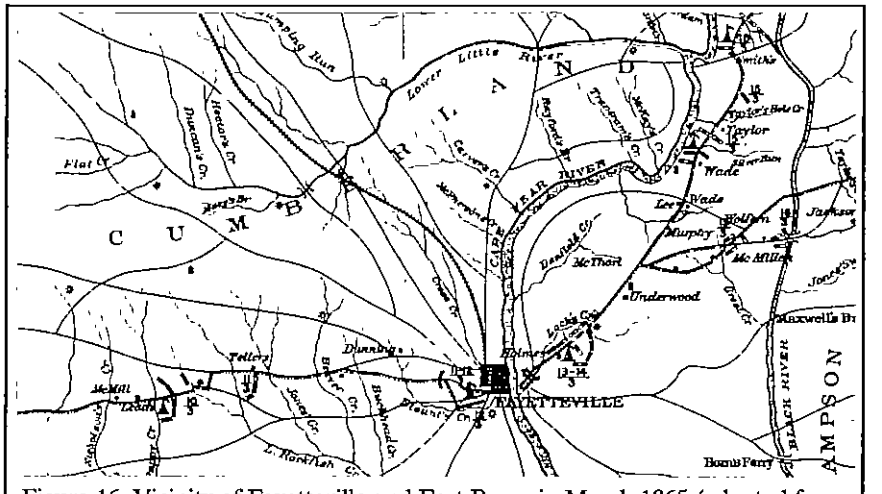

Figure 16. Vicinity of Fayetteville and Fort Bragg in March 1865 (adapted from *Atlas to Accompany the Official Records of the Union and Confederate Armies*, Plate LXXX, Number 8).

produced, while renting required that he pay a fixed rent in either crops or money (Orser 1988).

Smith provides a description of the poor soils found in the Sandhills region:

> In the midst of the large bodies of sand-hill lands there are occasional tracts of a fair grade of cultivatable land, generally found on or near the water courses. The sand-hill soils proper will produce almost nothing; they furnish, however, a scant pasturage in the swampy tracts which abound along the sluggish streams. The yaupon and the scuppernong grape flourish even in these sand wastes (Smith 1880:548).

Although the county's population grew up through the twentieth century, the poverty of the Sandhills soil deterred any large scale settlement of areas away from creeks and rivers. Smith (1880) describes the location of cultivable lands. He states that the rivers and creeks have wide areas of bottom lands:

> or are flanked by swamps or oak and pine flats, and on these are made crops of corn, potatoes and rice. Cotton is grown on the better class of uplands of mixed oaks and pines, which are interspersed among the sandy tracts. The forests are open and park-like .... In the midst of the large bodies of sand-hill lands there are occasional tracts of a fair grade of cultivatable land, generally found on or near the water courses (Smith 1880:548).

By the turn of the century, Cumberland County's population had increased to 14,952 whites and 12,369 blacks with a total population of 27,321 (State Board of Agriculture 1986:328). The town of Fayetteville grew rapidly after the introduction of a Norfolk and Southern railway line connecting Fayetteville to Raleigh in 1911, paralleling the history of many Southern communities (Lefler and Newsome 1973:586). It was in this year that Hoke County was created out of portions of Cumberland and Robeson counties (Corbitt 1950:124).

The military base at Fort Bragg near Fayetteville was established in 1918 as a field artillery training center. Covering around 60,000 ha, largely in Cumberland and Hoke counties, and named for General Braxton Bragg, Confederate corps commander, it was the largest military reservation in the United States. The land was purchased primarily because it was cheap since the soils were poor. For all the reasons that farmers were uninterested in the area and willing to sell, government officials were interested. In 1922 it became a permanent Army post, and in the 1940s it was described as having:

> a complete system of municipal and recreations facilities, a chapel, and a school for children; the buildings are modern, built of brick and stucco. The post organization is made up of four regiments of field artillery with latest equipment. A field artillery board tests experimental matérial on the firing range. Pope Field, the Air Corps station, is garrisoned by Flight C, 16th Observation Squadron, and the Second Balloon Squadron. The landing field has a mile-long runway.
>
> In summer the Reserve Officers Training Corps comes to Fort Bragg for training, units of the North Carolina National Guard encamp for two weeks, and the Citizens Military Training Camp is conducted. Since the establishment of the Civilian Conservation Corps in 1932, Fort Bragg has been headquarters of District A (Federal Writers' Project 1988:326; see Figure 17).

In 1952 the 1st Special Operations Command was

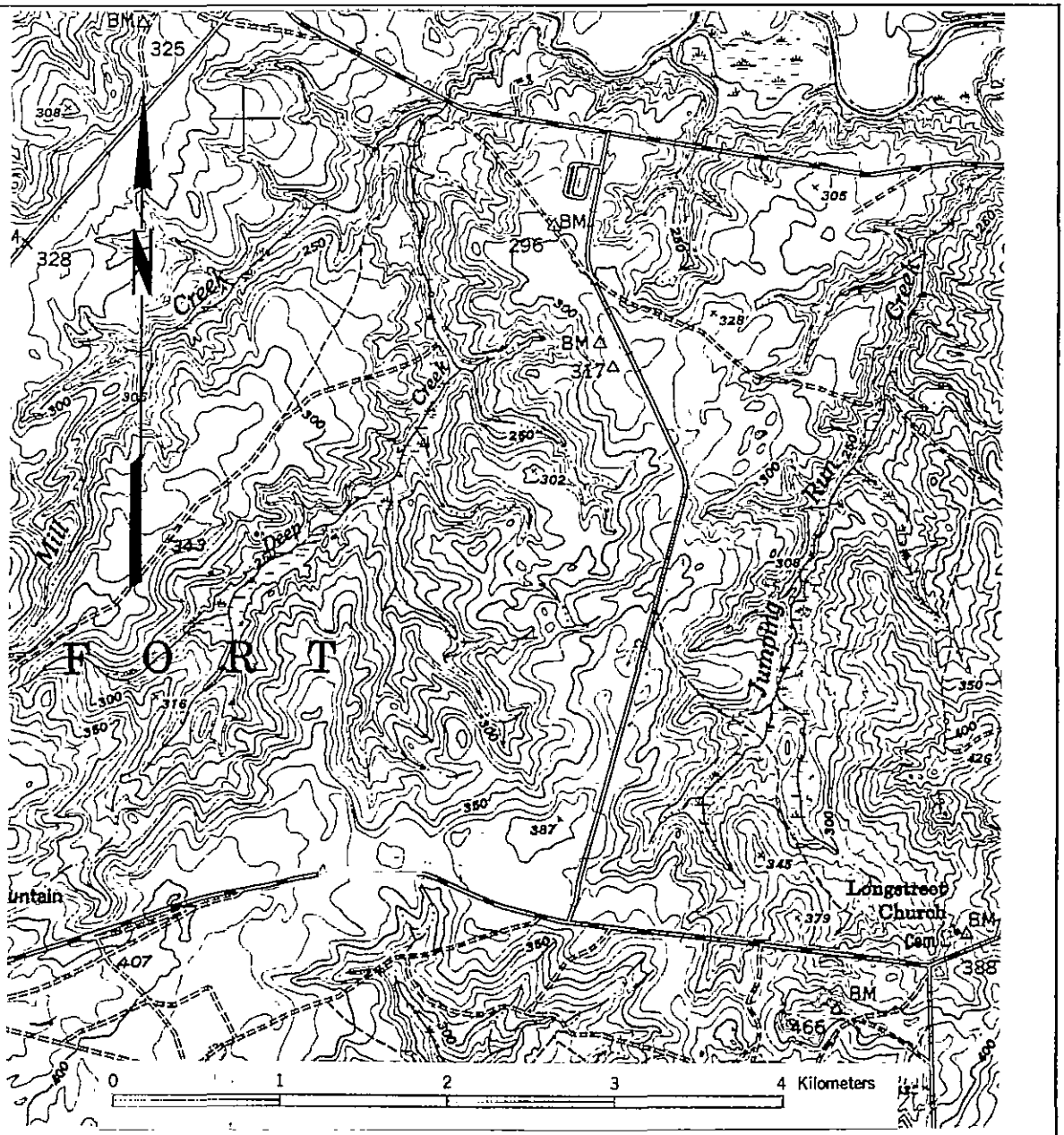

Figure 17. A portion of the Clifdale 15' USGS topographic map showing the project area as it appeared in 1948.

established and Fort Bragg became the Headquarters for Special Forces, Rangers, and Civil Affairs and Psychological Operations. It is also the home of 18th Airborne Corps, the largest corps in the world, as well as the home of the 20th Engineering Brigade, the 16th Military Police Brigade, the 18th Field Artillery Brigade, the 35th Signal Brigade, the 52nd Military Intelligence Group, and the 1st Corps Support Command (*Charlotte Observer*, May 20, 1984). Fort Bragg has become the largest camp of its kind in the nation, leading to tremendous growth of the surrounding region.

RESEARCH STRATEGY AND METHODS

Research Goals

The primary goals of this survey were to identify, record, and assess the significance of archaeological sites within the 557.5 ha portion of Sicily Drop Zone. As stated earlier, this work is being done in order to fulfill compliance with the National Historic Preservation Act (Public Law 89-665, as amended by Public Law 96-515) Guidelines for Federal Agency Responsibilities, under Section 110 of the National Historic Preservation Act, Army Regulation AR 420-40, and 36CFR800 (Protection of Historic and Cultural Properties).

Preservation efforts offer important economic, tourism, and education opportunities (see, for example, Rypkema 1990). Yet, clearly these are of little consequence to a government agency whose mission statement is national defense. Clearly, in such a case, the motivation is compliance with law. In spite of this, preservation offers intangible benefits, such as external benefits to society, which are worthy of careful consideration. U.S. Representative John Lewis from Georgia has remarked that, "it is not enough to learn from history or a movie, we must make sure that these precious pieces of our history are preserved." Knowing and understanding our past, many have argued, creates better citizens and hence a better society.[1] Citizens take greater pride in their city's, county's, and country's historical achievements. This pride naturally boosts morale and enhances civic participation. Native American and African American groups can rightly take pride in the expression of their unique ways of life, their history, and their contribution to our Nation. Exploration of our past reveals the heights of which humanity is capable. The study supplies continual inspiration and promise. The exploration of the past makes it possible to keep on seeing, thinking, and reflecting afresh -- and this freshness and willingness to explore the past is essential to the democratic process. Exploration of the past may offer social commentary by providing new insights into past lives, or how society reacted to past pressures. It may even help us to better understand the failures of past.

It is also important that a country which has so strongly advocated educational improvement and reform should also understand the irreplaceable role that historic and prehistoric resources can play in teaching us about our heritage. It is essential that the next generation of citizens understand the stories hidden within our archaeological sites and in our historic churches, houses, factories, and communities. The ability to reach out and touch the past, forming a strong a clear link between yesterday and today, offers an unforgettable understanding of another way of life and helps our children better understand the fabric of life in our country. By exploring and emphasizing African American and Native American history it is possible to strengthen the understanding that our heritage is the combined history and culture of all of our citizens.

Oftentimes historic preservation, through the exploration of the past, may challenge rather than reassure, and provoke rather than sooth. Archaeological research, in many ways, offers much more than history ever can since history is largely written by the well educated, the wealthy, and the white. History tends to ignore the poor, the underclass, the illiterate, making them invisible people. History is what others want us to know, archaeology offers the opportunity to explore the reality of the past without the filter of subjectivity added by some, perhaps many, historical accounts. Archaeology offers the potential to explore the

[1] One of the earliest discussions of preservation for patriotic reasons is Charles B. Hosmer, Jr.'s *Presence of the Past*, a history of preservation in America up to 1926. He reveals that long before even the Civil War, America's need to create a national identity manifested itself in efforts to preserve historic sites.

lives of African American slaves that are largely known only through the dry history of white slave-owner account books and plantation diaries. While slave owners were concerned with how many acres a slave could hoe, or how much they had to be fed, the owner was rarely interested in how slaves lived, died, ate, or made their house a home. Likewise, our understanding of Native American groups in the historic period is dominated by traders and occasional visitors who had clear reasons for coloring their accounts. Archaeology offers the only opportunity for better understanding the reality of the past.

Part of this reality is also the understanding that history is not made up of single events, or great people, or unique ideas alone. As Tony Wrenn and Elizabeth Mulloy explained nearly two decades ago:

> Events are only punctuation marks; the process itself is history. It takes days and days of irritation and heat and insult, and grievance to provoke a revolution. A bicentennial commemorates 200 years — not just the years on either side of a hyphen (Wrenn and Mulloy 1976:15).

History is fluid and on-going. It involves both the great and the small. Archaeological studies help us better understand both the continuum and also the importance of the common person.

Many also point out that historic preservation is a "merit good" — simply because preservation is an important part of life, its perpetuation and dissemination merits government support. Like food, shelter, and education, some feel that everyone should be entitled to a minimum quantity and standard of historic preservation experience, whether that be exposure to historically significant buildings, a better understanding of past industrial technology, or the ability to explore Native Americans who lived thousands of years ago. The government allows preservation efforts to be available and emphasizes their importance by support of preservation on government facilities and land.

Inherent in the understanding of merit good is the realization that, without subsidy, the cost of historic preservation is too high relative to most consumer's incomes. In other words, were it not for government intervention it is unlikely that much of the educational aspects of preservation would widely exist or be available for the public benefit. Only those the wealthy would be able to afford private preservation "experiences." It follows that there is an intrinsic wrong in making our history available to only the richest 20% of the population, who are likely to represent a very biased cross-section of our society.

However, in addition to the legally mandated goals of this study, we identified and incorporated a range of secondary goals which reflect an effort to address at least some of the issues identified as important to the discipline. These included both methodological issues, whose answers will help to better and more cost-effectively undertake survey and preservation efforts, and research issues, whose answers will help to better explore and refine our understanding of the past. The secondary goals of this survey included:

- the examination of changing prehistoric land use;
- the affects of clear-cutting and long-term exposure on archaeological sites;
- the effectiveness of 30 m interval transects at locating significant resources;
- changing lithic material preferences; and
- site function/duration based on artifact content.

No major analytical hypotheses were created prior to the field work and data analysis, although certain expectations regarding the secondary goals will be outlined in these discussions. The research design proposed for this study is, as discussed by

Goodyear et al. (1979:2), fundamentally explorative and explicative.

As stated above, the primary goals of this survey were to identify, record, and assess the significance of archaeological sites within the survey tract. The latter aspect involves the sites' eligibility for inclusion on the National Register of Historic Places, although Chicora Foundation only provides an opinion of National Register eligibility and the final determination is made by the lead compliance agency, the United States Army, in consultation with the State Historic Preservation Officer at the North Carolina Department of Cultural Resources.

The criteria for eligibility for the National Register of Historic Places is described by 36CFR60.4 and states that:

> [t]he quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and
>
> a. that are associated with events that have made a significant contribution to the broad patterns of our history; or
>
> b. that are associated with the lives of persons significant in our past; or
>
> c. that embody the distinctive characteristics of a type, period, or method of construction or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
>
> d. that have yielded, or may be likely to yield, information important in prehistory or history.

It is generally accepted that "the significance of an archaeological site is based on the potential of the site to contribute to the scientific or humanistic understanding of the past" (Bense et al. 1986:60). Butler suggests that the only valid measurement of significance must be based on what he calls the "theoretical and substantive knowledge of the discipline" at any particular moment in time (Butler 1987:821). While the use of this approach over that developed by Glassow[2] (1977) has been suggested, Butler himself acknowledges, "we cannot foresee future research questions, and we may not possess the theory to interpret and understand all that is present" (Butler 1987:822). At this point in time it seems essential to recognize the importance of asking the right questions at the right sites, not limiting the number of sites at which questions are asked, or what questions are posed. Clearly, asking "right questions" at the "right sites" can be difficult and requires an understanding of the "theoretical and substantive knowledge of the discipline" (Trinkley 1990:30-31).

National Register Bulletin 36 (Townsend et al. 1993) provides an evaluative process that

[2] Glassow's (1977) approach to evaluating site eligibility is through the use of five properties: site integrity, site clarity, artifactual variety, artifactual quantity, and site environmental context. These qualities stress properties of the archaeological record. *Integrity* refers to the degree of preservation or amount of in situ remains present at a site. It relates to the condition and amount of archaeological artifacts, ecofacts, and features found at a site. *Clarity* indicates how well the strata or subsurface features may be distinguished. *Variety* refers to the qualitative variability in the archaeological remains found at a particular site. *Quantity* refers to the frequency or density of the artifacts or subsurface remains and it is in many ways one of the easiest properties to evaluate (although it is certainly not the most important). The last criterion, *environmental context*, refers to unusual environmental features or zonation which might be important in distinguishing sites or site types.

contains five steps for forming a clearly defined explicit rationale for either the site's eligibility or lack of eligibility. Briefly, these steps are:

- identification of the site's data sets or categories of archaeological information such as ceramics, lithics, subsistence remains, architectural remains, or sub-surface features;

- identification of the historic context applicable to the site, providing a framework for the evaluative process;

- identification of the important research questions the site *might* be able to address, given the data sets and the context;

- evaluation of the site's archaeological integrity to ensure that the data sets were sufficiently well preserved to address the research questions; and

- identification of "important" research questions among all of those which might be asked and answered at the site.

This approach, of course, has been developed for use documenting eligibility of sites being actually nominated to the National Register of Historic Places where the evaluative process must stand alone, with relatively little reference to other documentation and where typically only one site is being considered.

In the case of a survey which identifies multiple sites the process outlined by Townsend et al. (1993) can become burdensome. Consequently, this study has elected to combine some of the steps, making the process more streamlined, without substantively altering the goal to ensure that sites capable of providing significant information are provided the protection afforded in the historic preservation process. The development of a context was not undertaken for each site, but is found outlined in the prehistoric and historic overview section of this report. The identification of "important" research goals is discussed below, outlining significant research issues such as those identified for the coastal region of North Carolina (Phelps 1983).

Otherwise, the evaluative process was essentially the same as outlined by Townsend et al. (1993). Data sets and integrity are discussed, and in a number of cases the lack of data sets is striking. Much of the types of materials previously identified by Loftfield (1979) at some of these sites are no longer present — primarily lithic tools. Reference is also made to the great deal of erosion/deflation that has occurred on the drop zone which has destroyed the integrity of most of the sites and destroyed other data sets (such as subsurface features) that might have once been present. Reference to the prehistoric context is made (when diagnostic material was found) as well as research issues that the site might be able to address.

In his synthesis of prehistoric archaeology of the Coastal Plain, Phelps (1983) listed some of the most important issues regarding the culture history of the area. While certainly not exhaustive, they are used to help determine which sites identified in the drop zone are important to a better understanding of the local prehistory. Phelps (1983:50) states that these issues include:

> (1) knowledge of Paleo-Indian period site distribution correlated with Pleistocene environment, which would result in settlement and subsistence models to be tested against those currently proposed;
>
> (2) discovery and excavation of either single-component or stratified Paleo-Indian and Archaic period sites to provide more accurate descriptions of assemblages for each phase and to assay diachronic changes in the

assemblages as well as changes in subsistence strategies and other cultural subsystems;

(3) location and excavation of sites that have preserved the transition from the Late Archaic to the Early Woodland to evaluate the impact of new technology introduced in the latter period;

(4) a study of changes in settlement and subsistence patterns during the Early and Middle Woodland periods in order to understand changes resulting from the introduction of cultigens; and

(5) excavation of sites that represent the range of types for each phase of the regional sequences to provide a complete culture history as a platform from which processual studies can be launched (Phelps 1983:50).

Although these issues are rather broad, they provide a good deal of latitude for framing more specific questions. These issues are discussed in greater detail in the Prehistoric Overview section of this report, but it is appropriate to briefly outline a few of the issues raised by Phelps.

His first and second research topics involve the dearth of information available concerning the Paleoindian Period along the North Carolina coast. Associated legitimate questions might include, what constitutes a Paleoindian site? This, of course, raises the question of where the line is drawn either to incorporate Hardaway and Palmer as terminal phases of the Paleoindian or to include them with Archaic traditions. The answer, of course, cannot come solely from typological studies and arguments, but must incorporate the identification and study of both stratified and even single component sites. The study must include the integrated exploration of both the soils and palynological records. Questions are raised concerning the types of landforms and microenvironmental areas in which Paleoindian sites are most likely to occur. Can the distribution of sites help us refine our understanding of Paleoindian subsistence and their use of different habitats? Additional questions are legitimately raised concerning the differing dates suggested for early sites. It is unfortunate that sites like Hardaway were destroyed before appropriate dating could be undertaken, but there are certainly other sites which may contain suitable proveniences and materials. How do the materials from the Sandhills compare, typologically, to those from the Coastal Plain or Piedmont? Is it possible to distinguish differences which might suggest the extent of different settlement systems?

His third question poses the concern of how Late Archaic Savannah River Stemmed point users became Early Woodland Badin or Deep Creek/New River pottery makers. While obviously early, well-dated sites producing Stallings or Thom's Creek pottery would be ideal, the investigation of virtually *any* Early Woodland ceramic site in the North Carolina Sandhills or on the state's Inner Coastal Plain would be exceptional, especially if it were then published. The research goal also should be interpreted to include questioning how the size of Savannah River points seems to have so consistently declined in size. Can stratified sites showing this change be identified? Ranging off from these initial questions, there are a whole range of especially significant issues. Perhaps one of the most intriguing is how the Middle and Late Archaic evolved into the Early and Middle Woodland. What were the processes, both internal and external, which caused this change and how significant was the change on the daily lives of the Native Americans.

This feeds into Phelps' fourth questions concerning cultigens. While his question is phrased to support the assumption that cultigens were present in Early Woodland, it seems that there is little evidence for such a statement anywhere in North Carolina. Therefore, one of the most important research goals might involve a rededication of efforts to seek out floral and faunal remains for intensive study. If they are present, what was their source — introduction from outside

the region or internal development of "weedy" plants? What is their context and date? What was the impact of these horticultural efforts, if they existed? Did they cause any real change in the lifeways of the Woodland peoples?

Phelps' final research goal is simple — sites, and lots of them, need to be examined in order to understand the range of diversity present. Sites in the lower Piedmont, sites in the Sandhills, sites in the Inner Coastal Plain, and sites in the Lower Coastal Plain need to be explored to understand the impact of both topography and the environment.

We realize that this lays out a tremendous range of questions. Some of them will likely be unanswerable, at least with our current level of understanding and expertise. And some may perhaps never be answered, lost in the fog of time behind the clouded glass. Yet too often the very asking of questions is ridiculed. While good for a little controversy and a quick laugh at a colleague's expense, such attitudes do nothing to promote the growth of archaeology and they do even less to help the public understand their heritage. Questions, even those which at first appear unanswerable, need to be asked. Without questions research can become little more than the blind acquisition of data.

One of the secondary goals we outline was to examine changing prehistoric land use. The CZR survey (Loftfield 1979) found that sites are commonly located on hill tops, toe slopes, upland flat areas, and saddle-like settings. The majority of sites were within 100 m of a water source on sandy soils. However, no attempt was made to determine land use through time. Braley (1990) has made some general statements regarding land use based on Loftfield's (1979) study as well as his study of the Northern Training Area (Braley 1989) (see also Braley 1990:3-13). These changes are discussed in the Prehistoric Overview section of this report.

Since Sicily Drop Zone has been clear cut and left exposed for approximately 45 years, an attempt was made to understand how much erosion/deflation has occurred at the archaeological sites and how that relates to the sites' ability to address significant research questions and therefore, their eligibility for the National Register of Historic Places. In addition, because of this exposure, the sites at Sicily have been collected continually over time since artifacts are readily visible. The analysis of the collections also focussed on how this has affected the sites' interpretive ability.

Another goal was to determine the ability of 30 m interval shovel test transects to locate all of the archaeological resources on a given tract. Since the drop zone is exposed, theoretically speaking, it provided us with the ability to identify and spatially define every site that exists there. The results of this survey were to be compared with what might be expected from a traditional survey where visibility is usually poor to non-existent. Whether or not there was a need to find small sites that could not be found on traditional surveys is also to be discussed.

Since the drop zone was known to contain a large quantity of prehistoric lithic sites, analysis was geared toward determining lithic resource preference changes through time. Both quartz river cobbles and metavolcanic materials were locally available, although river cobbles could be obtained within the boundaries of Fort Bragg and metavolcanics were known to outcrop as close as 16 km away (North Carolina Department of Conservation and Development 1958).

Another goal was to determine site function/duration based on artifact content. Sassaman et al. (1990) have suggested that examining the tool to debitage ratio can provide functional information about a site. For instance, a low tool-debitage ratio will reflect either "locations of intensive lithic tool production, or locations were tools or cores were modified but not discarded" (Sassaman et al. 1990:224). A high tool-debitage ratio correspond to "relatively intensively utilized locations (e.g. field stations) away from bases and/or sources of lithic raw material" (Sassaman et al. 1990:224). Artifact density is also a method of examining site function since it reflects the "relative intensity of material discard at a site. By extension, the amount of discard is assumed to be proportional to the cumulative duration of site occupation and/or the total number of site occupants, and/or the intensity of activities from which discarded debris was generated" (Sassaman et al. 1990:223). Diversity of the assemblage can also measure the length of occupation since the discard rate of curated items (such as hafted bifaces, pots, atlatls, etc.) is so low that all classes of artifacts will only be found together at sites with long occupational histories (Sassaman et al. 1990:224). This length of occupation

can also be measured by the number of components present (Sassaman et al. 1990).

All of these (tool/debitage ratio, artifact density, and artifact diversity) are tools to examine the nature of an archaeological site in terms of function and duration of occupation. While Sassaman et al. (1990) recommend looking at large subsurface data sets, examining the materials from Sicily, which were typically all gathered from the surface, using the methods previously described may provide a reference point for framing future research questions.

Archival Research

These investigations incorporated a review of the site files at the North Carolina Office of State Archaeology. A total of 78 previously recorded archaeological sites were recorded within the survey boundaries by Loftfield (1979) as part of a reconnaissance level survey of Fort Bragg, Camp MacKall, and Simmons Airfield. According to Fort Bragg's historic preservation plan (Braley 1990) no standing structures exist on the tract and the nearest structure or site listed on the National Register of Historic Places is Long Street Church (ca. 1845) which is located approximately 3 km east of the drop zone. Another notable site is Monroe's Crossroads which was located about 3 km west of the drop zone. Here a skirmish between Wheeler's cavalry and a detachment of General Sherman's troops under the command of General H. Judson Kilpatrick occurred at the end of the Civil War in March of 1865 (Loftfield 1979:27). At Monroe's Crossroads were two plantations: Rocky Mount and Green Springs. Loftfield (1979:28) recommended that this area receive further study for possible National Register nomination (see the **Prehistoric and Historic Overview** section of this report).

Field Survey

While typically, survey tracts are divided into high, medium, and low archaeological probability zones, Loftfield's (1979) study of the area revealed that Sicily Drop Zone had a high density of prehistoric archaeological resources (17 sites per km^2) compared to other areas of Fort Bragg. For instance, the estimated prehistoric site density for all of Fort Bragg is 10 sites per km^2 (Braley 1990:22). However, the high density at Sicily Drop Zone is a result of the area being clear cut and left exposed which provided excellent surface visibility. Nonetheless, the work order issued by the National Park Service specified that the whole survey area be considered high probability.

The scope of work specified that high probability surveys include transects and shovel tests spaced at 30 m intervals across the tract. All areas were to be shovel tested except areas of standing water or with 15% or greater slope. As discussed with Dr. David Anderson of the National Park Service, since the drop zone exhibited excellent visibility in many areas, those places would be surveyed using pedestrian transects spaces 10 m apart. Once in the field, this methodology changed. Since visibility was spotty (particularly in the southern portion of the drop zone), which made changing from 30 m shovel test transects to 10 m pedestrian transects difficult, it was decided to walk transects spaced at 30 m intervals, digging shovel tests at 30 m in areas of poor visibility and surface surveying a 15 m radius area in places which provided good visibility. This was believed to provide equivalent coverage with greater organizational ease. Mr. Wayne Boyko (Fort Bragg Archaeologist) was apprised of this change during the first full week of the survey and this methodology was approved.

Shovel tests, which were typically 30 cm by 30 cm or greater, were to be excavated to subsoil or if subsoil could not be identified to the maximum depth achievable with a shovel (about 75 cm). Minimally, shovel tests were excavated to about 30 cm below surface. As will be discussed, in most cases this represented either the extent of remaining A horizon soil or actually penetrated into the C horizon subsoils. The fill was to be screened through 0.62 cm mesh hardware cloth and soil stratigraphy was to be recorded on positive shovel tests.

Survey transects were plotted and numbered on a project field map (Figures 18 and 19) and transect logs were kept indicating if a shovel test was excavated or if the area was surface collected on a 15 m radius. A total of 267 transects were traversed and a total of 5254 shovel test stations (shovel tests/surface survey) were used. Of the 5254 shovel test stations 602 (or 11.5%) consisted of shovel tests and the remaining 4652 were surface surveyed.

As the site maps in the following report section are examined, it will become obvious that on

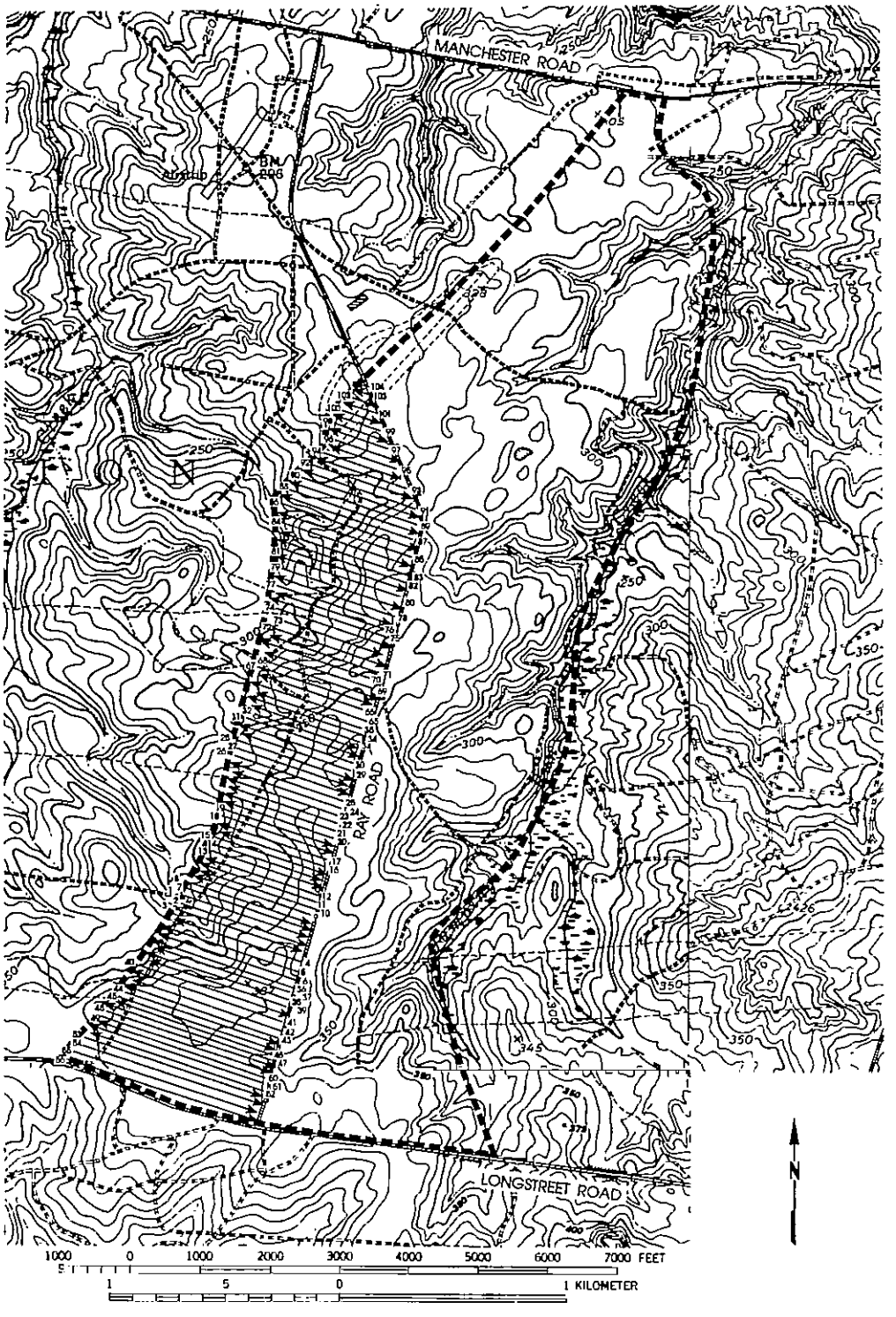

Figure 18. Survey transects to the west of Ray Road on Sicily Drop Zone.

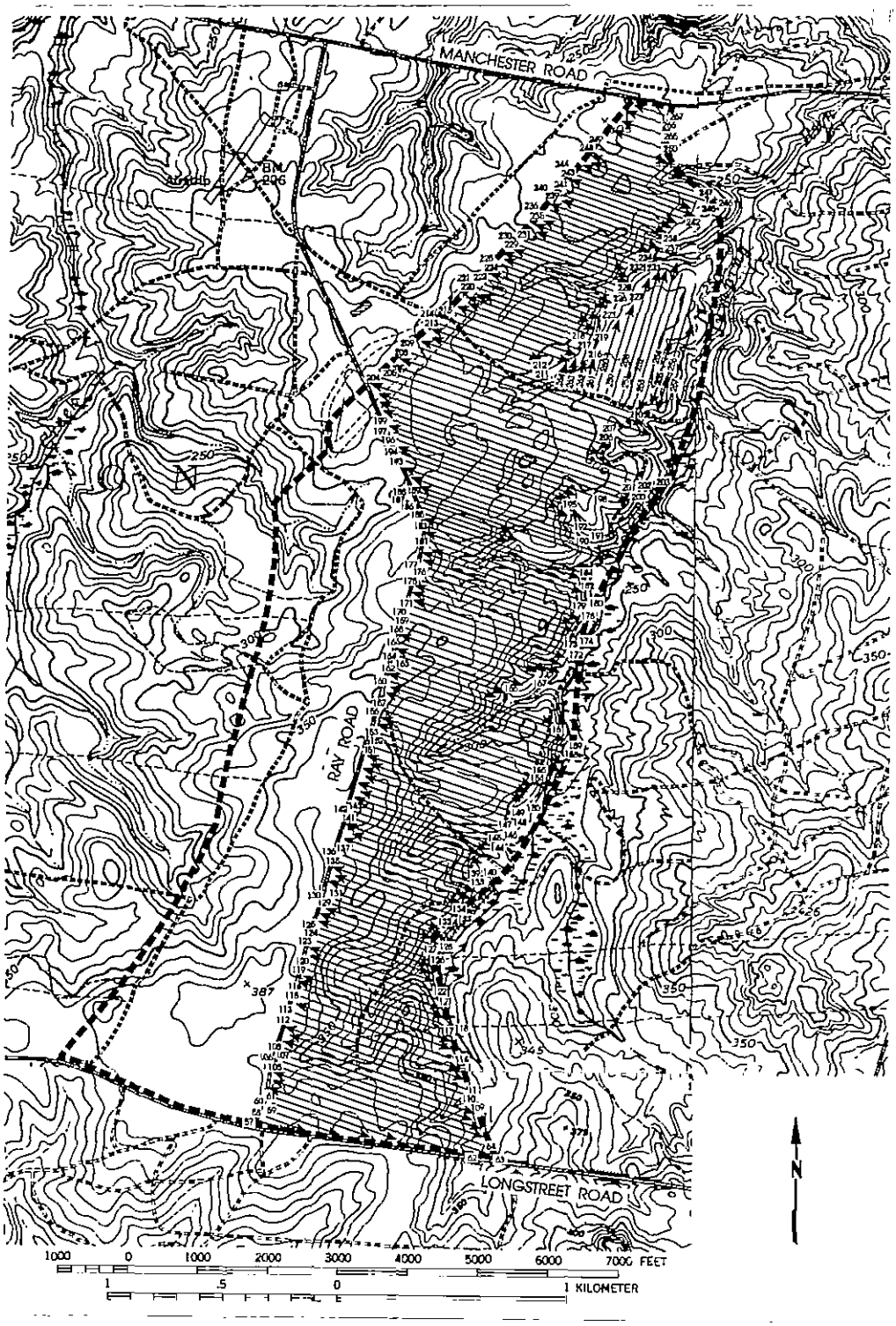

Figure 19. Survey transects to the east of Ray Road on Sicily Drop Zone.

occasion a positive surface collection station will appear to be located *outside* of the site boundaries. While this may at first appear to be an error in the location of site boundaries, it is not. Each surface collection station was a circle 30 m in diameter. In order to refine boundaries as much as possible, the materials from these collection areas were not randomly collected. Instead, the circle was walked and the artifacts were flagged. This allowed site boundaries to be drawn on the basis of where in the collection areas artifacts were actually found. This means that while the actual center point of the collection station may be shown "outside" the site boundaries, if you draw a 30 meter diameter circle from the center point, the portion within the drawn site boundaries actually produced artifacts. The rest of the collection area did not contain artifacts and was therefore excluded from the site. The goal here, of course, was to as much as possible replicate the precision offered by multiple shovel tests.

Table 2.
UTM Coordinates for Sites on Sicily Drop Zone
using GPS with Selective Availability

Site #	Positions Recorded	Northings	Eastings	Elevation (m)
31HK80	1	3888469.3	669049.5	125.0
31HK81	1	3888638.6	669134.0	47.0
31HK89	125	3889391.171571	669732.822472	42.818836
31HK94	1	3890119.9	669845.9	-23.0
31HK96	1	3890219.9	670063.6	27.0
31HK99	1	3890519.4	670182.3	148.0
31HK100	1	3890534.1	670051.5	95.0
31HK102	1	3890648.1	670112.7	16.0
31HK103	1	3890642.3	669944.0	118.0
31HK104	25	3890651.113891	669500.765677	21.931086
31HK107	1	3890176.7	669157.1	-7.0
31HK109	1	3890063.2	669165.7	103.0
31HK115	1	3889252.3	668894.7	39.0
31HK118	136	3888901.906152	668914.128410	70.064727
31HK124	1	3888710.3	668730.0	96.0
31HK125	147	3888893.654541	668553.522847	-44.409890
31HK126	1	3890702.8	669874.1	100.0
31HK128	1	3890862.6	670092.0	22.0
31HK148	1	3890859.6	670162.8	-10.0
31HK154	22	3891404.674882	670464.221595	-45.465780
31HK159	16	3891791.196059	670681.092441	86.154627
31HK161	1	3892041.3	670623.7	94.0
31HK162	1	3891922.0	670535.7	69.0
31HK166	1	3891342.5	670036.8	88.0
31HK170	1	3892092.7	670438.0	122.0
31HK173	1	3892236.5	670444.0	-35.0
31HK434	1	3889841.2	669343.4	57.0
31HK435	126	3889959.224008	668960.679750	116.197102
31HK436	1	3890239.1	669380.0	83.0
31HK437	1	3890074.7	669682.9	-23.0
31HK438	1	3890251.6	669833.1	80.0
31HK440	1	3890119.9	669931.3	126.0
31HK441	247	3890715.124872	669839.679447	137.031277
31HK442	43	3890999.816880	669644.545699	183.115552
31HK443	15	3890969.828083	669977.051315	115.71267
31HK444	1	3891819.4	670249.1	-13.0
31HK445	1	3892451.0	670698.1	-188.0
31HK446	19	3891538.512430	670597.667751	37.488000
31HK447	40	3891120.177626	670393.792890	137.213718
31HK508	1	3889242.5	669216.3	0.0

As specified by the North Carolina Office of State Archaeology, an archaeological *site* is defined as six or more artifacts in a 20 m area or any two consecutive positive shovel tests. An isolated *occurrence* (which is also assigned a site number) consists of five or less artifacts. Subsurface testing for the purpose of boundary definitions was to consist of grid pattern testing, typically along cardinal directions at 10 m intervals on sites less than 50 m across and 20 m on larger sites. A rough determination of site size, typically based on the distribution of surface artifacts, was made before closer interval testing based on findings from the 30 m transects.

Shovel tests were to be excavated until two consecutive negative tests were encountered around each positive test. The last shovel test in the sequence containing archaeological materials was to constitute a boundary. At Sicily Drop Zone there were many cases where no subsurface remains were encountered in excavated shovel tests at sites. Therefore, boundaries were defined by the extent of surface remains. These boundaries were typically defined

based on distance and orientation from a positive shovel test station.

One 50 by 50 cm test was to be excavated at each *site* to subsoil or a minimum of 100 cm (assuming subsoil was not reached). Profiles were to be drawn to scale and soil was to be described using a Munsell Soil Color designation. Photographs were to be taken using black and white and color transparency film.

At each *site*, a sketch map was to be drawn to scale showing the locations of shovel tests, test units, natural and man-made features, and datums. In addition, GPS positions were to be taken at all *sites*, and at each potentially eligible or eligible *site* a metal datum was to be established.

Table 3.
Correlation of accession numbers with site numbers

Site #	Acc. #	Site #	Acc. #	Site #	Acc. #	Site #	Acc. #
31HK78	95446	31HK126	95435	31HK449	95362	31HK481	95394
31HK79	95440	31HK128	95436	31HK450	95363	31HK482	95395
31HK80	95421	31HK129	95463	31HK451	95364	31HK483	95396
31HK81	95422	31HK148	95437	31HK452	95365	31HK484	95397
31HK84	95447	31HK154	95438	31HK453	95366	31HK485	95398
31HK87	95448	31HK156	95464	31HK454	95367	31HK486	95399
31HK88	95449	31HK157	95465	31HK455	95368	31HK487	95400
31HK89	95349	31HK158	95466	31HK456	95369	31HK488	95401
31HK90	95470	31HK159	95439	31HK457	95370	31HK489	95402
31HK91	95450	31HK161	95441	31HK458	95371	31HK490	95403
31HK92	95451	31HK162	95442	31HK459	95372	31HK491	95404
31HK93	95452	31HK165	95469	31HK460	95373	31HK492	95405
31HK94	95423	31HK166	95443	31HK461	95374	31HK493	95406
31HK96	95352	31HK170	95444	31HK462	95375	31HK494	95407
31HK99	95424	31HK173	95445	31HK463	95376	31HK495	95408
31HK100	95425	31HK175	95473	31HK464	95377	31HK496	95409
31HK102	95426	31HK176	95474	31HK465	95378	31HK497	95410
31HK103	95427	31HK177	95475	31HK466	95379	31HK498	95411
31HK104	95428	31HK434	95346	31HK467	95380	31HK499	95412
31HK105	95454	31HK435	95347	31HK468	95381	31HK500	95413
31HK106	95455	31HK436	95348	31HK469	95382	31HK501	95414
31HK107	95429	31HK437	95350	31HK470	95383	31HK502	95415
31HK109	95430	31HK438	95351	31HK471	95384	31HK503	95416
31HK110	95456	31HK440	95353	31HK472	95385	31HK504	95417
31HK113	95458	31HK441	95354	31HK473	95386	31HK505	95418
31HK114	95459	31HK442	95355	31HK474	95387	31HK506	95419
31HK115	95431	31HK443	95356	31HK475	95388	31HK507	95420
31HK116	95461	31HK444	95357	31HK476	95389	31HK508	95345
31HK117	95462	31HK445	95358	31HK477	95390		
31HK118	95432	31HK446	95359	31HK478	95391		
31HK124	95433	31HK447	95360	31HK479	95392		
31HK125	95434	31HK448	95361	31HK480	95393		

The GPS positions were taken with a Trimble GeoExplorer™ rover using selective availability with *at least* one position recorded. Selective availability typically provides an accuracy of ±100 m. At sites recommended as potentially eligible multiple positions were taken and the results averaged to provide a more accurate location (±40 m) (Table 2). However, there are factors than can affect the accuracy of an uncorrected GPS reading and potentially make the range of error much greater than ±100 m. These include ionospheric and atmospheric delays which can affect the speed at which a signal is received on a given time of the day. While this speed can be predicted for an average day, changes in atmospheric conditions which are out of the ordinary can not be corrected. Other factors involving accuracy are the distance of a satellite above the horizon, the distance between satellites, the availability of the necessary number of satellites, and "multipath error." Multipath error means that the signal does not go directly to the receiver, but bounces off other objects before reaching the receiver. The amount of error is evident through an examination of the elevations provided in Table 2. Because of these problems with accuracy, UTMs were also hand plotted and these positions are provided with the site descriptions. The hand plotted UTMs typically are more accurate because the range of error was determined to be much less using the shovel test/transect locations as well as nearby topographic features.

Ideally, GPS positions should be recorded with the data corrected by a base station file. With correction, the accuracy would have been ±5 m. However, a combination of problems (failure of the rover's lithium battery resulting in the loss of some of

the data and problems with the Fort's base file) prevented its use during this particular survey. The data could not be efficiently regathered after these problems occurred since the military had policed the drop zone during the survey and removed most of the site boundary flags.

Datums at potentially eligible sites consisted of a length of iron rebar with approximately 5 cm exposed above ground. An aluminum cap marked with the temporary site number was placed on top of the rebar. Permanent site numbers could not be used on the site datums since there had not yet been assigned by the North Carolina Office of State Archaeology.

No deviations from the original methodology described in the Scope of Work (other than those discussed above) occurred during the field work. No other unusual or expected problems occurred during the study which affects the quality of the data.

Laboratory Methods

The cleaning of artifacts and cataloging of the specimens was conducted during rain days in the field and completed at Chicora laboratories in Columbia in early December 1995. The materials will be curated at Fort Bragg and have been cataloged using that institution's accessioning practices which are those used by the North Carolina Office of State Archaeology. Table 3 provides a list of permanent site numbers and their corresponding accession numbers as assigned by the North Carolina Office of State Archaeology. No specimens were identified which required conservation or stabilization. Specimens were packed in plastic bags and boxed. Field notes were prepared on pH neutral, alkaline buffered paper and photographic materials were processed to archival standards. All field notes, with archival copies, will also be curated with this facility.

Analysis methods focused on occupation spans, likely functions of the various sites, and changes in raw material preferences. Since all of the sites were prehistoric, diagnostic lithics and/or ceramics provided temporal information. The diagnostic lithic remains were compared to published typological descriptions for the various projectile points (typologically distinct bifaces) such as Coe (1952, 1964), Oliver (1981), and South (1959).

Two primary materials were identified in the lithic collections. One was quartz, which was usually a translucent white, but occasionally reddish, grayish, yellowish-brown, or clear. This material is found throughout the Carolina Piedmont and might have been obtained from either veins or as cobbles in Piedmont river gravels. The other common material was classified simply as metavolcanic, meaning partially metamorphosed volcanic rocks. This might include flow banded rhyolite, porphyritic rhyolite, plain rhyolite, felsic tuff, welded vitric tuff or breccia tuff.

Debitage categories included primary (defined as flakes with 90% or more cortex), secondary (defined as having 1% to 90% cortex), interior (defined as having no cortex). More refined categories, where they are used, follow the definitions offered by Blanton et al. (1986) and Oliver et al. (1986).

At the survey level tools are defined very simply, being placed in broad morphological categories. Our laboratory methods, for example, define a biface as an artifact with flakes removed on both sides (not distinguishing between preforms, early stage reductions, and so forth); a core is a piece of raw material from which flakes have been removed; an end scraper is a blade tool with at least one convex end which exhibits a steep angle; a used flake is a chip of stone that was used as a tool, exhibiting edge damage or wear; and a side scraper is a flake tool in which one of the long edges was retouched to serve as the scraping edge.

Pottery examples were compared to typological descriptions provided by Coe (1964), Loftfield (1976), and South (1959) for the south coastal region and the North Carolina Piedmont. They were also compared to the type descriptions offered by Phelps (1983) for the north coastal region.

RESULTS OF SURVEY

Introduction

The cultural resources identified during the intensive survey of the 557.5 ha Sicily Drop Zone at Fort Bragg consist of 40 archaeological sites and 85 isolated occurrences (Table 4, Figure 20). Of these resources, four of the archaeological sites (31HK89, 31HK118, 31HK125, and 31HK435) are recommended as potentially eligible for inclusion on the National Register of Historic Places

All of the cultural resources identified during the intensive survey were prehistoric. However, one site (31HK445) yielded two fragments of manganese glass, with no other historic remains present.

Revisited Archaeological Sites

31HK80

Site 31HK80 is located about 200 m north of Longstreet Road and 50 m east of Ray Road. The central UTM coordinates are N3888270 E669060. The site is situated on a drainage sideslope and the nearest source of water is a springhead which is located 680 m to the northeast on that same drainage. The elevation at the site is 112 m and it is 160 m^2 in size (Figure 21).

The site was originally identified by Loftfield (1979:G-58) who surface collected one Kirk Serrated projectile point, one Palmer projectile point, two knives, one grit tempered sherd, and 142 flakes. No subsurface testing was performed and he recommended that the site be further tested before it was evaluated for its eligibility for the National Register of Historic Places.

Vegetation at the site consists of very sparse grass and a surface collection was made which consisted of 18 quartz interior flakes, eight metavolcanic interior flakes, and one quartz fire cracked rock. These remains were collected in a 16 m east-west by 15 m north-south area. One central shovel test and four cardinal shovel tests were placed at the site in 10 m intervals. None yielded subsurface remains and all were taken to a depth of about 35 cm below surface. A centrally located 50 cm test unit was also placed at the site which yielded no artifacts. A total of 27 artifacts was collected from the site.

The profile of the test unit was 10 cm of brown sand (10YR4/3) over 2 cm of strong brown sand (7.5YR6/8) over 12 cm of brownish yellow sand (10YR6/3) for a total 24 cm (see Figure 21). The soils are classified as Lakeland sand. No dark gray sand Ap horizon, typical of Lakeland sand, was found at the site indicating that it is eroded.

The difference between the quantity of artifacts collected by Loftfield and the current survey is striking. While collectors may account for the depletion of some of the remains, the absence of a relatively large amount of debitage may be due to different collection techniques or erosion. The surrounding area is badly eroded with large and deep gullies. Due to this damage and the lack of subsurface remains, the site will unlikely be able to address significant research questions. The data sets are limited to non-diagnostic lithic debitage. As a result, 31HK80 is recommended as not eligible for inclusion on the National Register of Historic Places.

31HK81

Site 31HK81 is located about 400 m north of Longstreet Road and 50 m east of Ray Road. The central UTM coordinates are N3889400 E669140. The site is located on an upland slope which leads to a drainage. A springhead associated with this drainage is located approximately 370 m to the northeast. The elevation at the site is 112 m and the site is 960 m^2 in size (Figure 22).

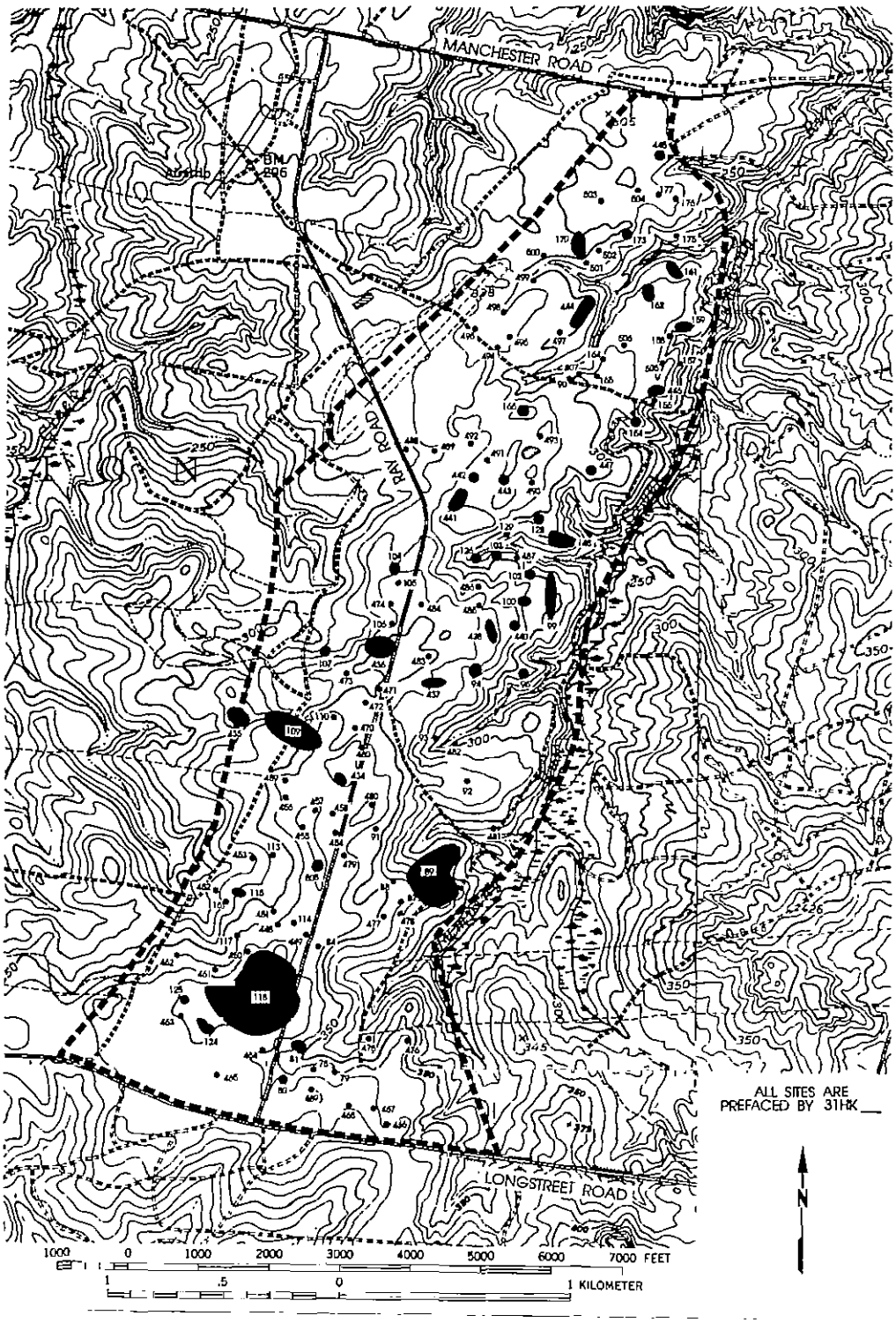

Figure 20. Location of archaeological sites and occurrences identified during the survey.

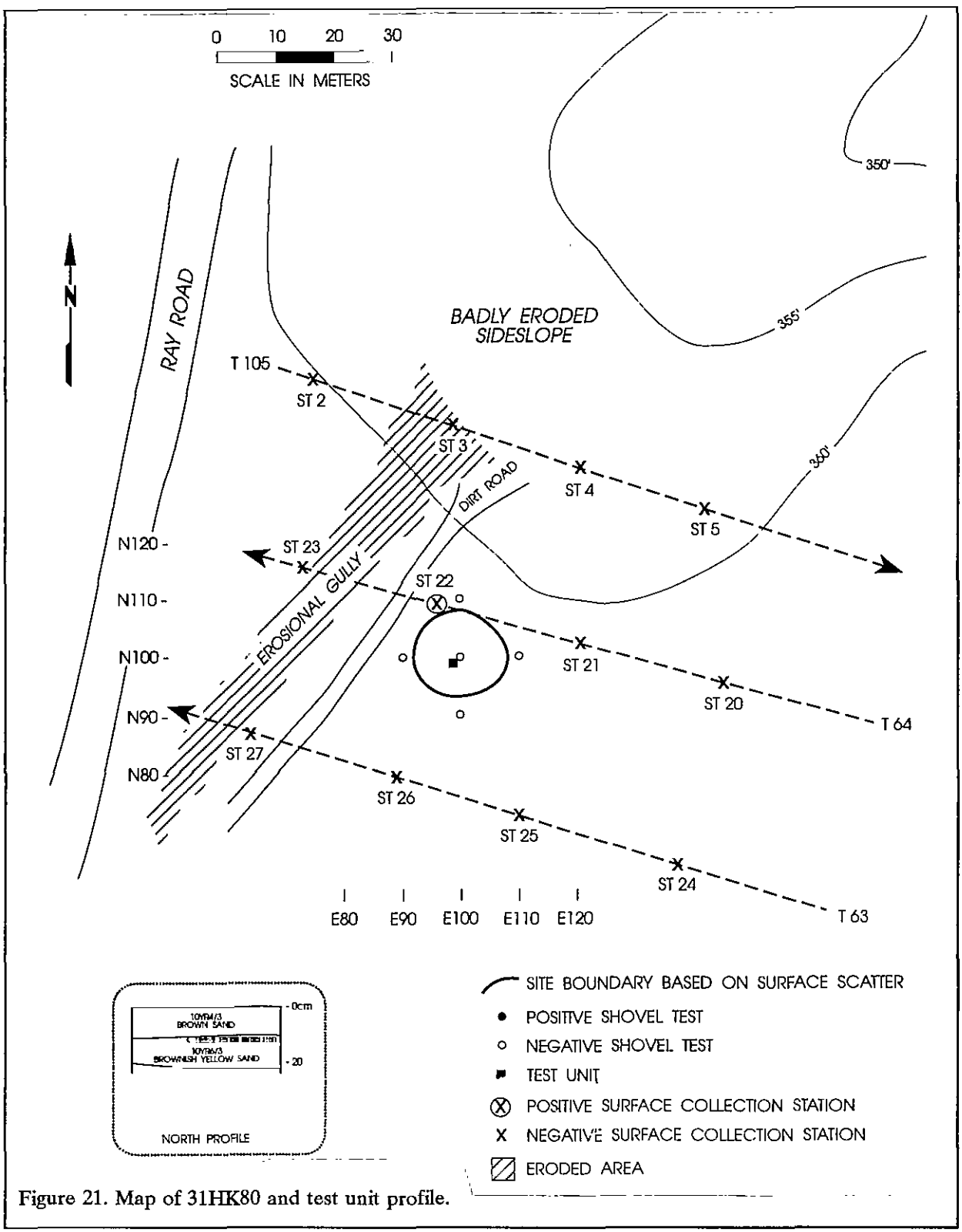

Figure 21. Map of 31HK80 and test unit profile.

The site was originally identified by Loftfield (1979:G-58) who collected one scraper and five flakes. No subsurface testing was done and no additional work was recommended.

Vegetation at the site consists of sparse grass providing good visibility. Surface collected from the site were 61 metavolcanic interior flakes, one metavolcanic secondary flake, and seven quartz interior flakes. These artifacts were collected from an area measuring 30 m north-south by 40 m east-west. A central shovel test was excavated with four additional tests excavated in cardinal directions at 20 m intervals to a depth of 50 cm below surface. None yielded artifacts. A 50 cm test was placed near a surface concentration and excavated 30 cm below surface, but was sterile. A total of 69 artifacts was recovered from the site.

The soil profile of the test unit consisted of 6 cm of strong brown sand (7.5YR5/8) mottled with yellowish brown sand (10YR5/6) overlying 24 cm of strong brown sand (see Figure 22). The soils are classified as Lakeland sands which typically contain these strong brown sands at depths from 15 to 44 cm below surface. This suggests that the site is badly eroded.

No diagnostic artifacts were recovered from the site and 31HK81 probably functioned as a lithic work station. Artifacts at the site were

Table 4.
Archaeological Sites Identified at Sicily Drop Zone

Site Number	Components	Artifacts	Size (m^2)	Quadrangle	Eligibility
31HK80	Lithic	27	160	Nicholson Cr.	NE
31HK81	Lithic	69	960	Lobelia	NE
31HK89	Lithic	208	11,488	Lobelia	PE
31HK94	Lithic	29	1,144	Lobelia	NE
31HK96	Triangular (Woodland)	76	1,796	Lobelia	NE
31HK99	Lithic	337	19,920	Lobelia	NE
31HK100	Lake Mohave (M Archaic)	150	640	Lobelia	NE
31HK102	Lithic	87	224	Lobelia	NE
31HK103	Lithic	22	316	Lobelia	NE
31HK104	Lithic	18	864	Lobelia	NE
31HK107	Lithic	32	844	Lobelia	NE
31HK109	Ceramic (Woodland)	57	8,480	Lobelia	NE
31HK115	Yadkin (M Woodland)	184	2,644	Lobelia	NE
31HK118	Palmer (E Archaic) Caraway (L Woodland) Ceramic (Woodland)	2079	37,575	Lobelia	PE
31HK124	Lithic	80	4,680	Lobelia	NE
31HK125	Lithic	76	56	Lobelia	PE
31HK126	Lithic	98	240	Lobelia	NE
31HK128	Yadkin (M Woodland)	40	68	Lobelia	NE
31HK148	Badin (E Woodland)	90	6,534	Lobelia	NE
31HK154	Lithic	18	896	Lobelia	NE
31HK159	Lithic	19	796	Lobelia	NE
31HK161	Halifax (M Archaic) Hanover (M Woodland)	103	3600	Lobelia	NE
31HK162	Lithic	24	948	Lobelia	NE
31HK166	Lithic	39	492	Lobelia	NE
31HK170	Lithic	45	764	Lobelia	NE
31HK173	Lithic	90	4,632	Lobelia	NE
31HK434	Morrow Mnt (M Archaic)	49	2,984	Lobelia	NE
31HK435	Hanover (M Woodland)	161	7,584	Lobelia	PE
31HK436	Lithic	86	3,936	Lobelia	NE
31HK437	Lithic	40	880	Lobelia	NE
31HK438	Savannah R (L Archaic) Ceramic(E Woodland)	53	968	Lobelia	NE
31HK440	Lithic	32	396	Lobelia	NE
31HK441	Lithic	167	852	Lobelia	NE
31HK442	Lithic	10	52	Lobelia	NE
31HK443	Lithic	14	96	Lobelia	NE
31HK444	Yadkin? (M Woodland)	150	8,384	Lobelia	NE
31HK445	Lithic	8	1,316	Lobelia	NE
31HK446	Lithic	35	1,036	Lobelia	NE
31HK447	Lithic	15	136	Lobelia	NE
31HK508	Lithic	16	496	Lobelia	NE

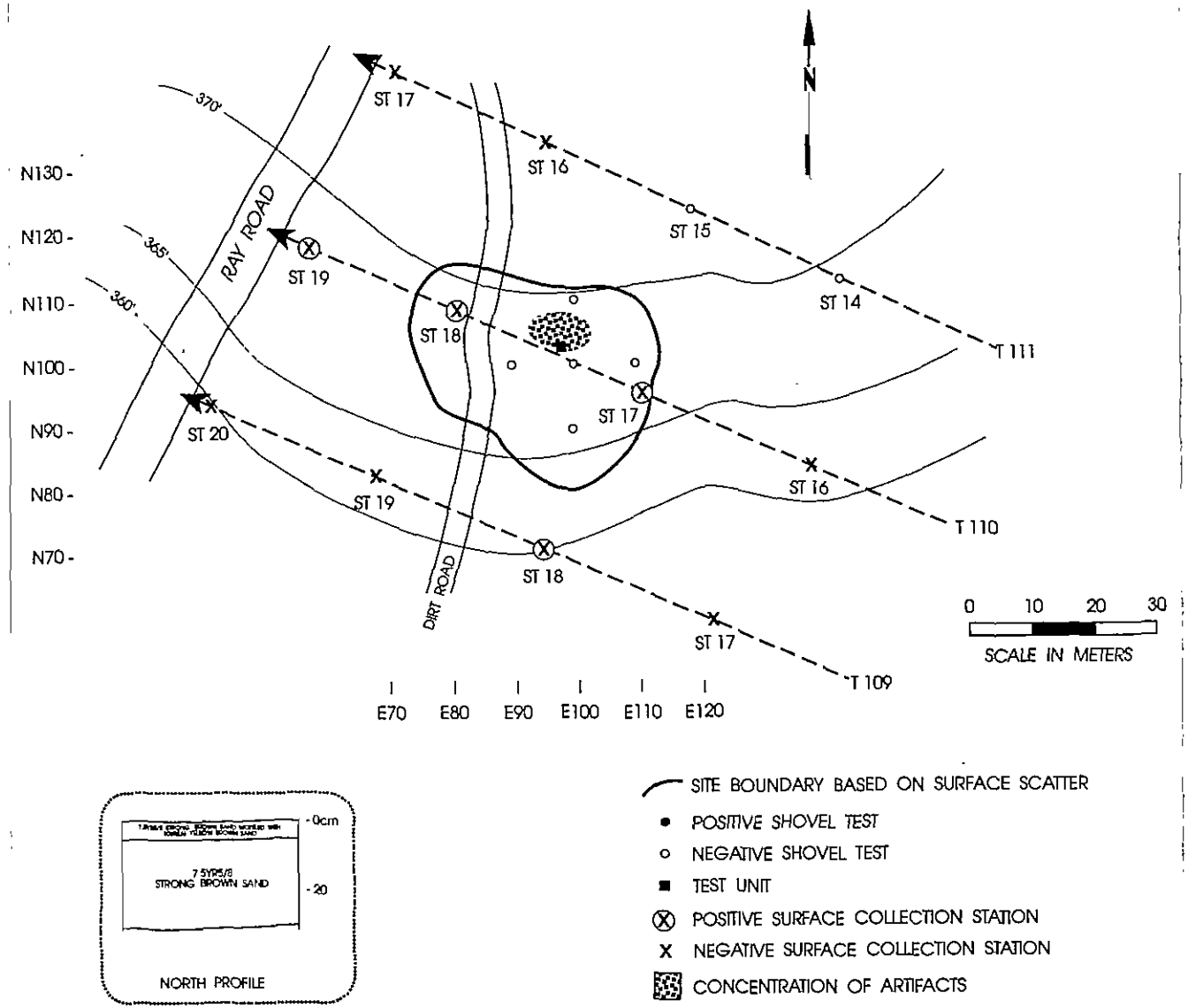

Figure 22. Map of 31HK81 and test unit profile.

relatively sparse and no remains were found below surface. In addition, the site is eroded and data sets were limited to non-diagnostic lithic debitage. Therefore, 31HK81 is unlikely to be able to address significant research questions. As a result, the site is recommended as not eligible for inclusion on the National Register of Historic Places.

31HK89

Site 31HK89 is located 1200 m north of Longstreet Road and 450 m east of Ray Road. The central UTM coordinates are N3889150 E669700. The site is located on a V-shaped ridge nose with an intermittent stream and springhead to the north and Jumping Run Creek to the east and southeast. The closest source of water is the intermittent stream which is found approximately 120 m to the north. The elevation at the site is 97 m and it is 11,488 m^2 in size (Figure 23).

The site encompasses previously recorded 31HK89 and 31HK90. However, the North Carolina Office of State Archaeology assigns one number per site and typically does not allow the use of multiple numbers for one site, so 31HK89 was assigned to this site and 31HK90 was assigned to a new site.

Loftfield's (1979:G-59) 31HK89 was found on the southern portion of the landform where he collected one Big Sandy projectile point, one Morrow Mountain II projectile point, one blade, one projectile point base (Guilford), two projectile point fragments, one blade fragment, two knives, one biface, five grit/sand-tempered prehistoric sherds, 18 bone fragments, and 260 flakes.

Loftfield's (1979:G-60) site 31HK90 was found on the northern portion of the landform where he collected two Morrow Mountain projectile points, one Savannah River point, one projectile point base (Savannah River), two knives, one blade fragment, one chopper, one scraper, one utilized flake, five biface fragments, four sand tempered sherds, and 191 flakes.

No subsurface testing was performed at either site and Loftfield (1979:G-59-60) recommended additional work to evaluate the sites for National Register eligibility.

Table 5.
Subsurface Artifacts from 31HK89

	Interior Flakes	
Provenience	Quartz	Metavolcanic
T141ST15 (N500E500)		7
N520E500		2
N440E500		2
N410E550	3	
TU 1, 0-10 cm		2
TU 1, 10-20 cm	1	
Total	4	14

Vegetation at the site consisted of moderate to sparse grass. While traversing regular transects, 12 shovel tests were excavated at 30 m intervals across the site on transects 137 through 143 in areas of poor to moderate visibility. Only one of these (T141ST15) produced subsurface remains. Areas with good visibility were surface collected with artifacts recovered from an area measuring 160 m north-south by 130 m east-west. Artifacts surface collected include 111 quartz interior flakes, one quartz cobble, 57 metavolcanic interior flakes, and 23 pieces of fire cracked rock. No diagnostic artifacts were recovered.

Using the positive shovel test as a base point, additional shovel tests were excavated in a grid pattern at 20 m intervals using the orientation of the landform as the shovel test grid. Of 29 shovel tests excavated (including the original positive test) at 20 m intervals four produced subsurface remains (Table 5). These tests were excavated to depths ranging from 65 to 73 cm below surface. A 50 cm square test unit was excavated between two positive shovel tests to a depth of 30 cm below surface. Artifacts were recovered in the top 20 cm of soil. A total of 209 artifacts was recovered at the site.

The soil profile in the test unit consisted of 20 cm of brown sand (10YR4/3) overlying 10 cm of strong brown sand (10YR6/8) (see Figure 23). The soils are classified as Lakeland sands and the presence of brown soils at the site suggests that at least some areas of the site are not completely

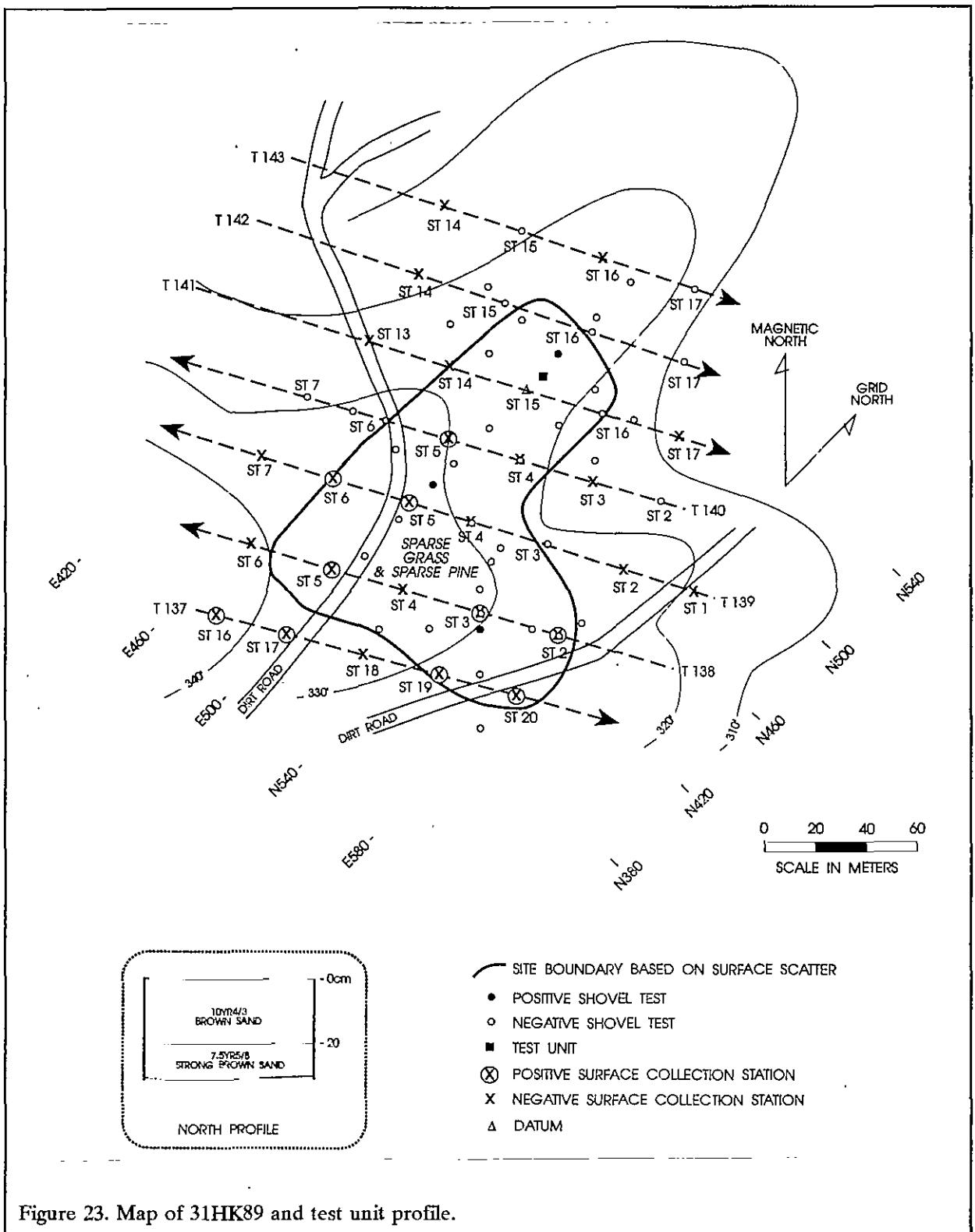

Figure 23. Map of 31HK89 and test unit profile.

eroded. However, it was noted that areas on the sideslope had experienced a great deal of erosion as evidenced by small gullies.

Besides erosion the site has also been damaged by road grading and, of course, was probably damaged by initial clear cutting of the drop zone. It is interesting to note the difference in the quantity and type of artifacts recovered by Loftfield (1979) and by the current survey. This suggests that this site has been frequented by collectors.

Although no diagnostic artifacts were collected during this survey, Loftfield's collection suggests that the site was occupied from the Early Archaic to the Early Woodland Period. The presence of subsurface remains and its history of yielding a large quantity of diagnostic artifacts suggests that the site may have the potential to address significant research questions. The presence of animal bone fragments during the previous survey suggests that it may still yield subsistence data although none was recovered during this survey. The soils in the Sandhills region are acidic and, therefore, not amenable to faunal preservation. Since in the past this site has produced animal bone, further work seems warranted since this type of data is rare for this region. Research issues that the site might be able to address consist of:

- changing diet, particularly during the period of technological change (Late Archaic/Early Woodland); and

- assemblage profile for Early Archaic sites.

31HK89 is recommended as potentially eligible for inclusion on the National Register of Historic Places.

31HK94

Site 31HK94 is located about 2080 m north of Longstreet Road and 360 m east of Ray Road. The central UTM coordinates are N3890050 E669870. The site is located on a small ridge nose on a larger upland sideslope. The closest source of water is an intermittent stream located 250 m to the south. The elevation at the site is 100 m and it is 1,144 m^2 in size (Figure 24).

The site was originally identified by Loftfield (1979:G-61) who collected one Savannah River projectile point base, one Guilford projectile point base, one biface fragment, five blade fragments, and 91 flakes. No subsurface testing was performed and no further work was recommended.

There is essentially no vegetation in the site area providing excellent visibility. A surface collection was made in an area measuring 25 m east-west by 24 m north-south. This collection consisted of 10 quartz interior flakes, one quartz core, 17 metavolcanic interior flakes, and one projectile point tip (perhaps Guilford). A centrally located shovel test was placed at the site with four additional tests excavated in cardinal directions at 10 m intervals. All were excavated to depth of 35 to 40 cm below surface and none yielded artifacts. In addition, a 50 cm square unit was placed at the site which was excavated to 30 cm below surface. No remains were recovered. A total of 29 artifacts was collected from the site.

The soil profile consisted of 26 cm of reddish yellow sand (7.5YR6/8) overlying 4 cm of strong brown sand (7.5YR5/8) (see Figure 24). The soils are classified as Lakeland sand. The absence of an Ap horizon consisting of dark gray sand (10YR4/1) suggests that the site is eroded.

No clearly diagnostic remains were recovered from the site. Given the types of artifacts recovered, the site probably functioned as a lithic work shop. No subsurface remains were encountered, surface artifacts were sparse, the data sets were limited to lithic debitage, and the site is eroded. Therefore 31HK94 is unlikely to address significant research questions. The site is recommended as not eligible for inclusion on the National Register of Historic Places.

31HK96

Site 31HK96 is located 2200 m north of Longstreet Road and 560 m east of Ray Road. The

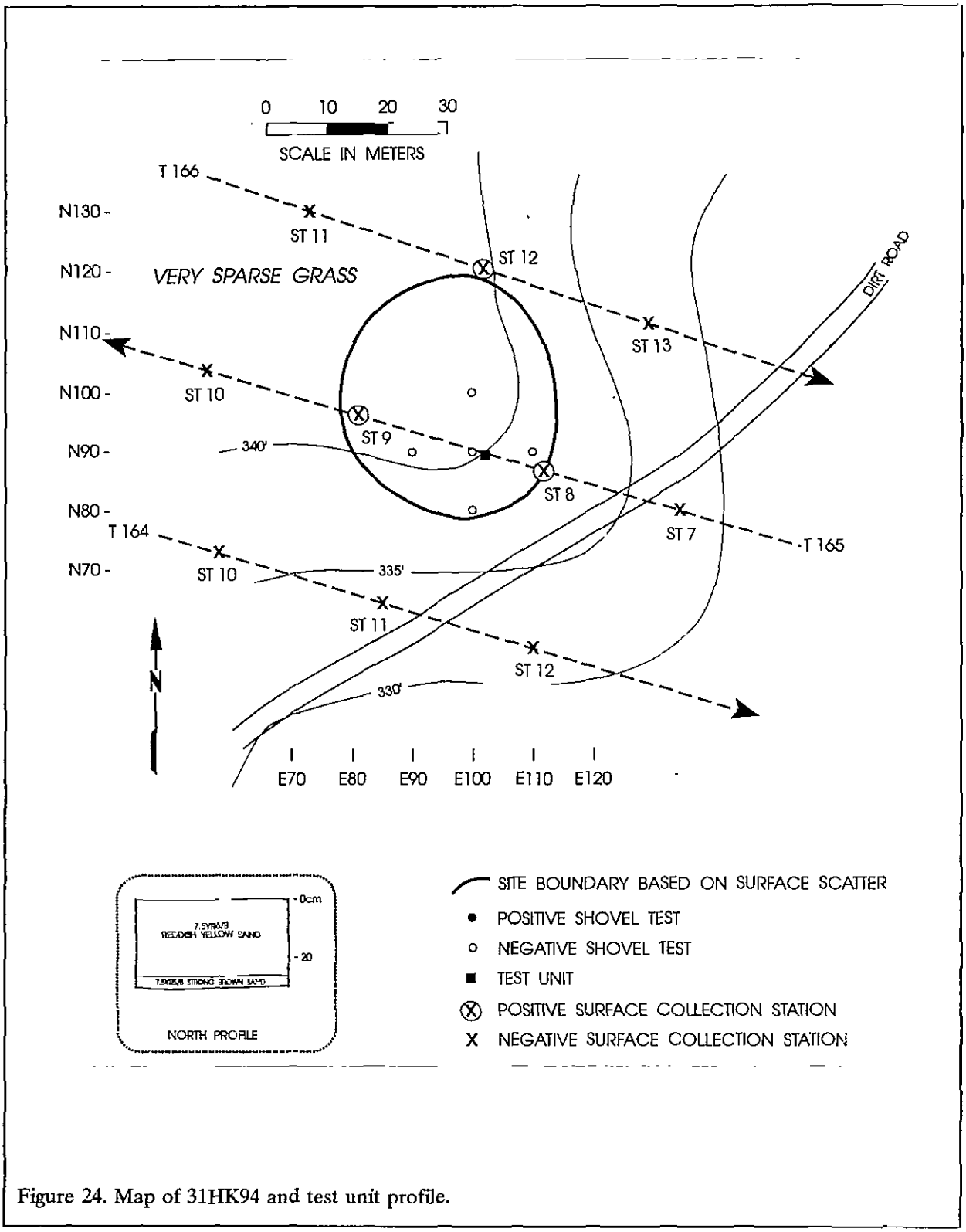

Figure 24. Map of 31HK94 and test unit profile.

central UTM coordinates are N3890040 E670100. The site is located on a small ridge nose, with a springhead immediately to the north and an intermittent stream 100 m to the south. The elevation at the site is 97 m and it is 1,796 m^2 in size (Figure 25).

The site was originally identified by Loftfield (1979:G-61) who collected one Morrow Mountain I, one Randolph, one fragmentary Pee Dee triangular, one Caraway, two projectile point fragments, one blade fragment, one scraper, one grinding stone, four biface fragments, 37 prehistoric sherds, and 85 flakes. Additional testing was recommended.

Vegetation at the site consists of sparse grass which provided good visibility. A surface collection was made in an area measuring 35 m north-south by 65 m east-west. Collected were 55 quartz interior flakes, nine metavolcanic interior flakes, two broken quartz projectile points, and six small unidentifiable sherds. One point is a relatively large triangular point which may be Yadkin. The estimated length is 36.21 mm, the width is 21.02 mm, and the thickness is 7.02 mm, which fits the range provided by Coe (1964). Also recovered was a fragmentary quartz Caraway point, whose base measures 25.00 mm.

Fourteen shovel tests, excavated to depths ranging from 55 to 70 cm below surface, were placed at the site in a grid pattern at 10 m intervals. Of those, two produced subsurface remains. These remains include one quartz interior flake (N100E100) and two metavolcanic interior flakes (N100E110). A 50 cm square was place at the site between the two positive shovel tests. This test was excavated to 30 cm below surface. One quartz interior flake was found in the top 10 cm. A total of 76 artifacts was collected from the site.

The soil profile consisted of 10 cm of dark gray sand (10YR4/1) overlying 20 cm of strong brown sand (7.5YR5/8) (see Figure 25). The soils are classified as Lakeland sands and the presence of 10 cm of dark gray sand in the test unit (typical of Lakeland Ap soils) suggests that the site has suffered little from erosion, at least in the central portion of the site. However the site has been damaged by the initial clear cutting of the drop zone.

The site dates to the Woodland Period as evidenced by the presence of a triangular point and probably functioned as a lithic work station. Very few subsurface artifacts were encountered as well as relatively few surface artifacts. In addition, the data sets were limited to lithics. As a result, 31HK96 is unlikely to yield significant research data and is recommended as not eligible for inclusion on the National Register of Historic Places.

31HK99

Site 31HK99 is located 2400 m north of Longstreet Road and 600 m east of Ray Road. The central UTM coordinates are N3890340 E670220. The site is situated on a ridge nose with intermittent streams to the north and south, and Jumping Run Creek to the east. The closest water source is the northern intermittent stream which is located 50 m away. The elevation at the site is 94 m and the site is 19,920 m^2 in size (Figure 26).

The site was originally identified by Loftfield (1979:G-62) who collected two Big Sandy projectile points, two Savannah River projectile points, one blade, one drill, five biface fragments, one utilized flake, and 63 flakes. No subsurface testing was done and further testing was recommended.

Vegetation at the site consists of sparse grass providing excellent surface visibility. Collected were 172 quartz interior flakes, one quartz primary flake, one quartz core, one quartz anvil, 149 metavolcanic interior flakes, four metavolcanic secondary flakes, one metavolcanic uniface, one metavolcanic projectile point tip, and one raw material. These artifacts were collected in a linear area measuring 320 m southwest-northeast and 80 m northwest-southeast. A series of 20 m interval shovel tests were excavated down the center of the surface scatter all taken to a depth of about 70 cm below surface. Twenty tests were excavated with only one yielding subsurface artifacts. This shovel test yielded five quartz interior flakes and one metavolcanic biface. A 50

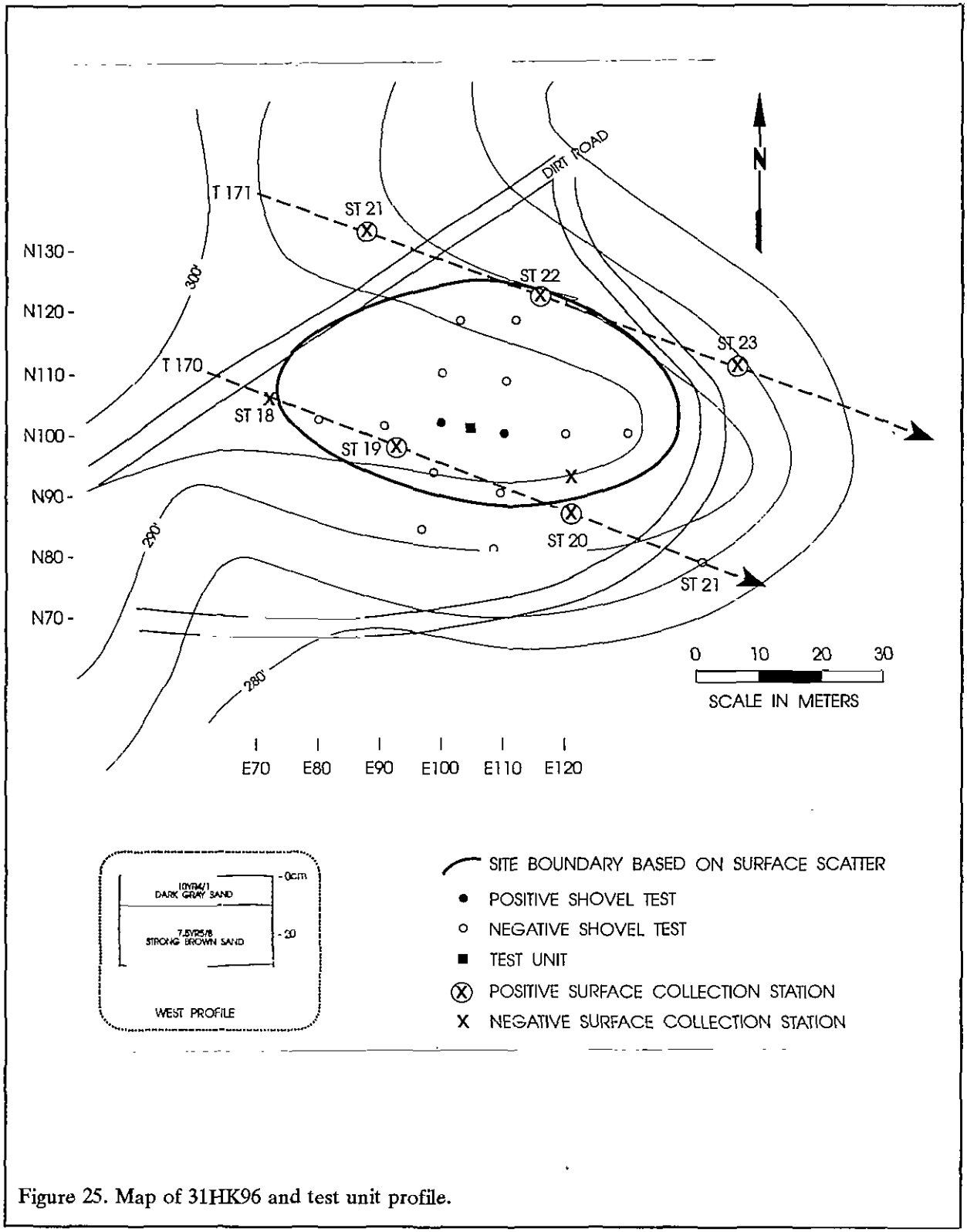

Figure 25. Map of 31HK96 and test unit profile.

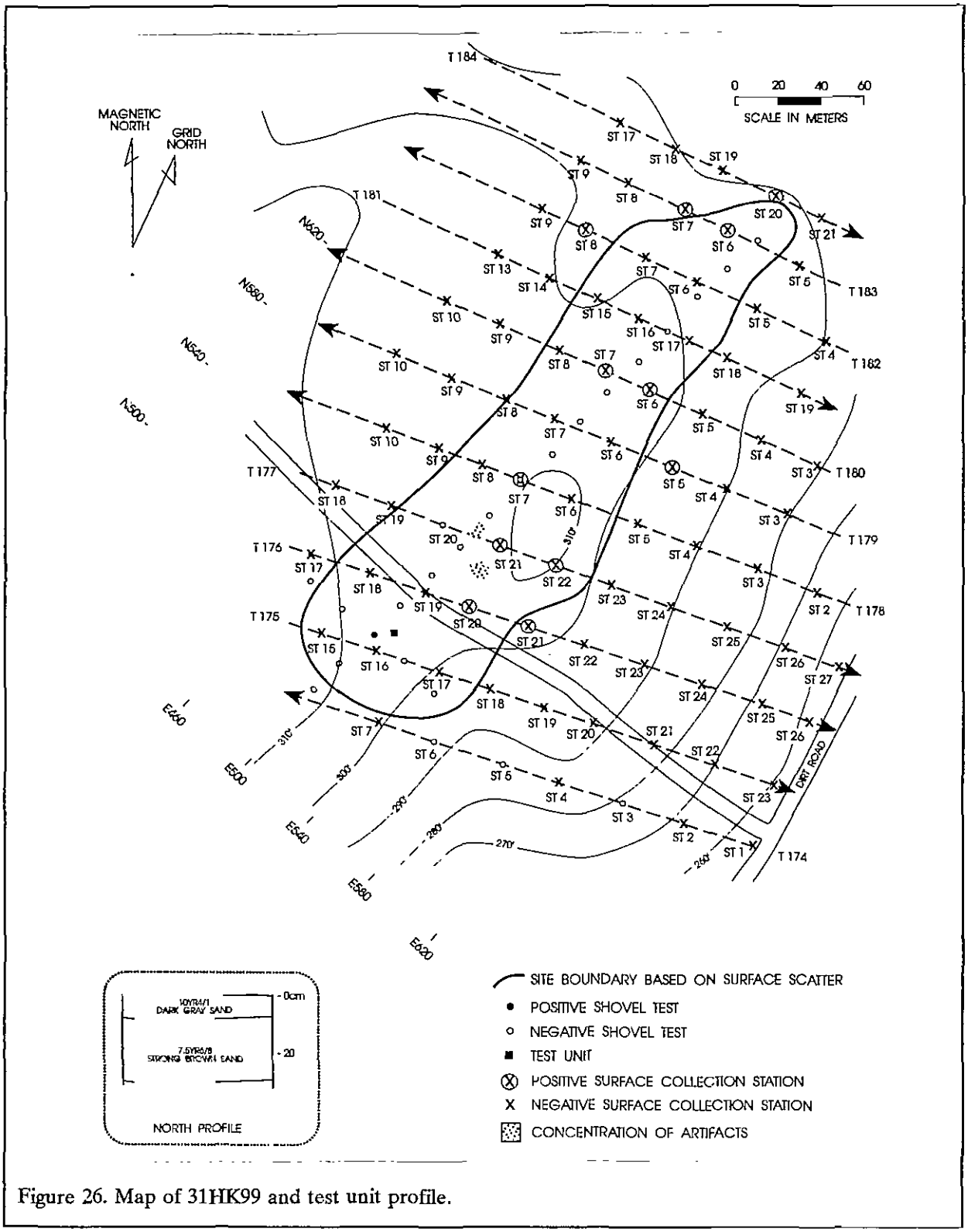

Figure 26. Map of 31HK99 and test unit profile.

cm square unit was placed adjacent to the positive test. This test was excavated to a depth of 30 cm below surface and no artifacts were encountered. A total of 337 artifacts was collected at the site.

The soil profile consisted of 7 cm of dark gray sand (10YR4/1) overlying 23 cm of strong brown sand (7.5YR5/8) (Figure 26). The soils are classified as Lakeland sands which typically have an Ap horizon of dark gray sand. The profile suggests that the site has suffered little from erosion.

The site has been impacted by road grading and by the initial clear cutting of the drop zone. Despite a large quantity of artifacts found on the surface, the site contains few subsurface remains. No diagnostic artifacts were recovered from the site and it may have functioned as a short term camp. It is unlikely that 31HK99 can address significant research questions since it contained primarily surface lithic debitage. As a result, 31HK99 is recommended as not eligible for inclusion on the National Register.

31HK100

Site 31HK100 is located 2400 m north of Longstreet Road and 480 m east of Ray Road. The central UTM coordinates are N3890370 E670080. The site is located on a gentle upland slope adjacent to an area that drops somewhat more sharply to the southeast. The elevation at the site is 97 m and it is 640 m^2 in size (Figure 27).

The site was originally recorded by Loftfield (1979:G-62) who collected one Palmer projectile point, one Guilford projectile point, three Savannah River projectile points, one projectile point base (Guilford), two projectile point fragments, two blades (Guilford), one blade fragment, two biface fragments, one grit tempered prehistoric sherd, and 114 flakes. No subsurface testing was done and he recommended additional work at the site.

The vegetation at the site consists of very sparse grass which provided excellent surface visibility. Collected from an area measuring 31 m east-west by 28 m north-south were 83 metavolcanic interior flakes, three quartz interior flakes, three fire cracked rock, and one metavolcanic projectile point. This point is similar to the Lake Mohave type described by Campbell et al. (1937). While this type is typically found in the California-Nevada area, a number of these points have been reported from North Carolina. Coe (1964:54) found Lake Mohave type points at the Doerschuk site both on the surface and in Zone VIII. Coe (1964:54) states that "[t]hese points might have belonged to an occupation earlier than Stanly but all that can be safely concluded is that they were older than the age of Zone VIII in which they were re-deposited." Stratigraphically, Zone VIII was located between Guilford (Zone VI) and Morrow Mountain (Zone IX) (Coe 1964). Measurements for the recovered point are: length — 41.13 mm; width — 18.80 mm; thickness — 8.95 mm. It may be that point is actualy a crude Morrow Mountain varient. Additional research is necessary to resolve this issue.

Table 6.
Subsurface Artifacts from 31HK100

Provenience	Interior Flakes Metavolcanic	FCR	Biiface
N100E100	3		
TU 1, 0-10 cm	33	3	
TU 1, 10-20 cm	17	2	1
TU 1, 20-30 cm	1		
	53	5	1

A total of nine shovel tests was excavated at the site to depths of 70 cm below surface. Of those nine tests only one yielded artifacts. These consisted of three metavolcanic interior flakes. A 50 cm square unit was also placed at the site which was excavated to 40 cm below surface. Artifacts were recovered to a depth of 30 cm below surface (Table 6). A total of 150 artifacts was collected from the site.

Soil profiles at the site consisted of strong brown sand (7.5YR5/8) to 40 cm below surface. Some charcoal was gathered from levels two and three, but this charcoal is believed to be associated with a tree burn since most of it came from a large fragment of wood charcoal in the west wall of the unit (see Figure 27). Soils are classified as

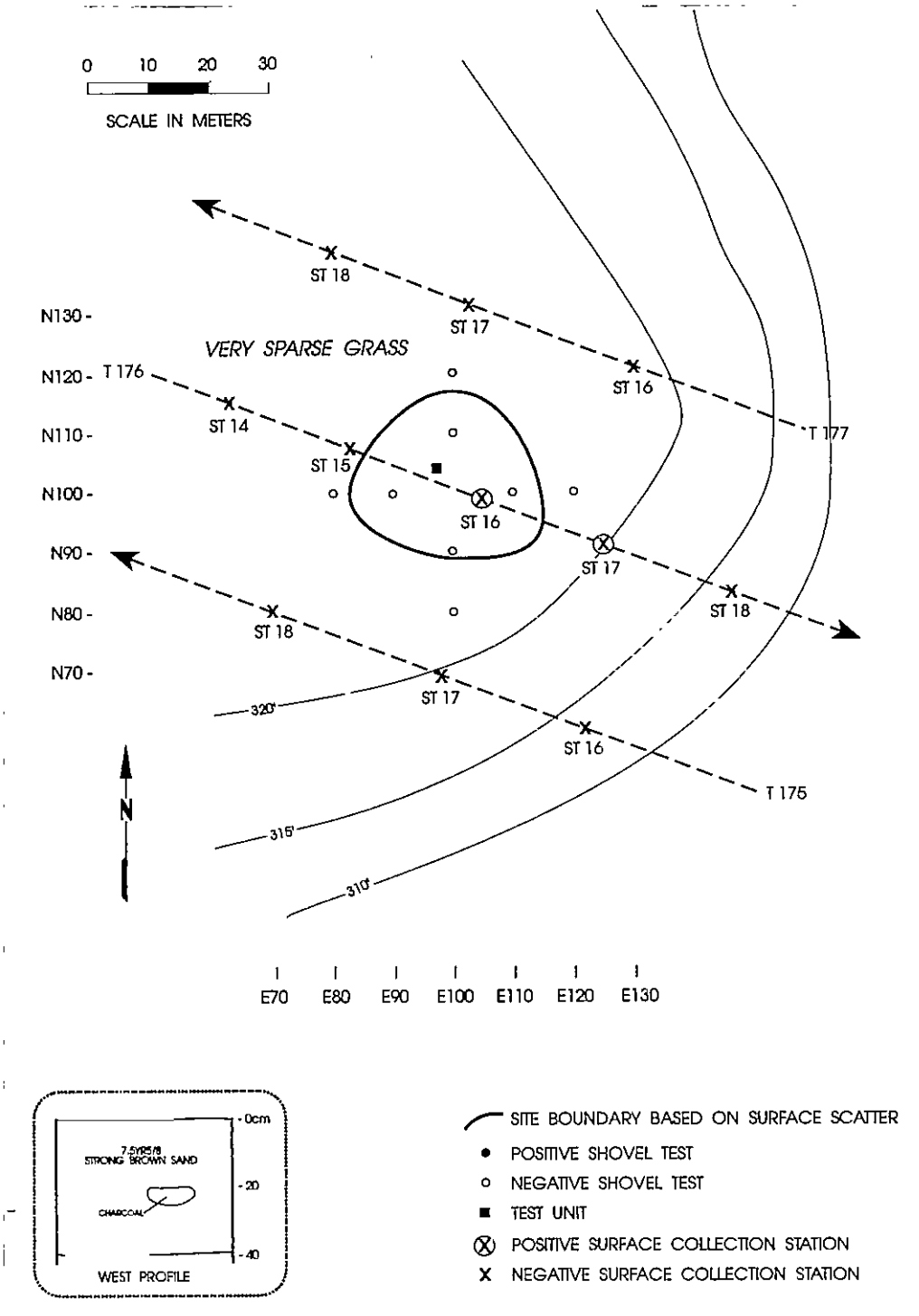

Figure 27. Map of 31HK100 and test unit profile.

Lakeland sands and typically the strong brown sand is located about 15 cm below surface. This suggests that a great deal of erosion or deflation has occurred, although not enough to totally destroy subsurface deposits. Other damage to the site consists of the initial clear cutting of the drop zone. Since the site is eroded, contains limited data sets, and is relatively small, it is unlikely to address significant research questions. As a result, 31HK100 is recommended as not eligible for inclusion on the National Register of Historic Places.

31HK102

Site 31HK102 is located 2490 m north of Longstreet Road and 490 m east of Ray Road. The central UTM coordinates are N3890460 E670140. The site is situated on a drainage sideslope with an intermittent stream located about 100 m to the north. The elevation at the site is 94 m and it is 224 m^2 in size (Figure 28).

The site was originally identified by Loftfield (1979:G-63) who collected one Guilford projectile point, one biface, and 40 flakes. No subsurface testing was done and no further work was recommended.

The site area was almost entirely exposed providing excellent surface visibility. Artifacts were collected from an area measuring 20 m north-south by 17 m east-west. These artifacts consisted of 85 quartz interior flakes and one chunk of quartz raw material. The majority of these remains came from a concentration measuring about 4 m by 4 m. A shovel test was excavated in the middle of the concentration and one quartz interior flake was recovered. Eight additional tests were excavated at 10 m intervals in cardinal directions. All were excavated to about 50 cm below surface and none of these tests yielded artifacts. Eighty-seven artifacts were recovered from the site.

The soil profile in the unit consists of 19 cm of strong brown sand (7.5YR5/8) over 6 cm light brownish gray sand (10YR6/2) over 4 cm of brownish yellow sand (10YR6/8) (see Figure 28). The soils are classified as Lakeland sands which typically do not contain strong brown soils until a depth of about 37 cm below surface. This indicates that the site is eroded.

No diagnostic artifacts were recovered to place the site temporally. 31HK102 probably functioned as a lithic work station, based on the artifacts recovered from this survey which consisted solely of lithic debitage. The site is unlikely to be able to address significant research questions since there were few subsurface remains and there has been a significant amount of erosion. In addition the site has been damaged by the initial clear cutting of the drop zone. Site 31HK102 is recommended as not eligible for inclusion on the National Register of Historic Places.

31HK103

Site 31HK103 is located 2560 m north of Longstreet Road and 320 m east of Ray Road. The central UTM coordinates are N3890550 E669960. The site is situated on a drainage sideslope with an intermittent stream located about 30 m to the north. The elevation at the site is 91 m and it is 316 m^2 in size (Figure 29).

The site was identified by Loftfield (1979:G-63) who collected one Morrow Mountain I projectile point, two Morrow Mountain II projectile points, one Savannah River projectile point, one Randolph projectile point, one knife, three knife fragments, one blade, three blade fragments, two biface fragments, two scrapers, one core, 126 prehistoric sherds, and 99 flakes. No subsurface testing was done and additional work was recommended to determine National Register eligibility.

Vegetation at the site consists of sparse grass and the site is intersected by a dirt road. These instances provided excellent surface visibility and a collection was made in an area measuring 18 m north-south by 23 m east-west. This collection consisted of 22 quartz interior flakes. A centrally placed shovel test was excavated at the site with four addition tests excavated at 10 m intervals in cardinal directions. All tests were excavated to 35 cm below surface and none yielded artifactual remains. A 50 cm square test unit was also placed at the site and excavated to 30 cm below surface.

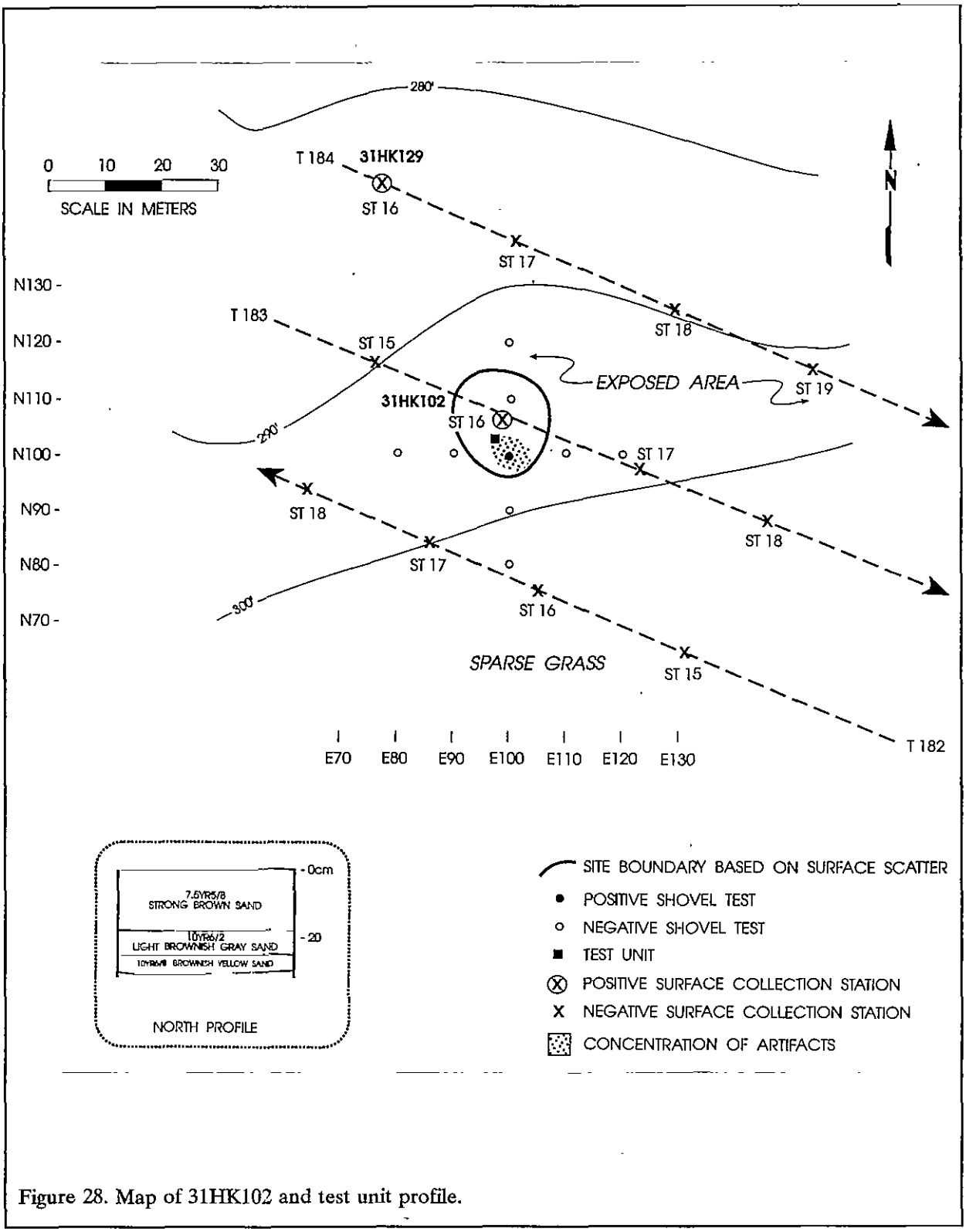

Figure 28. Map of 31HK102 and test unit profile.

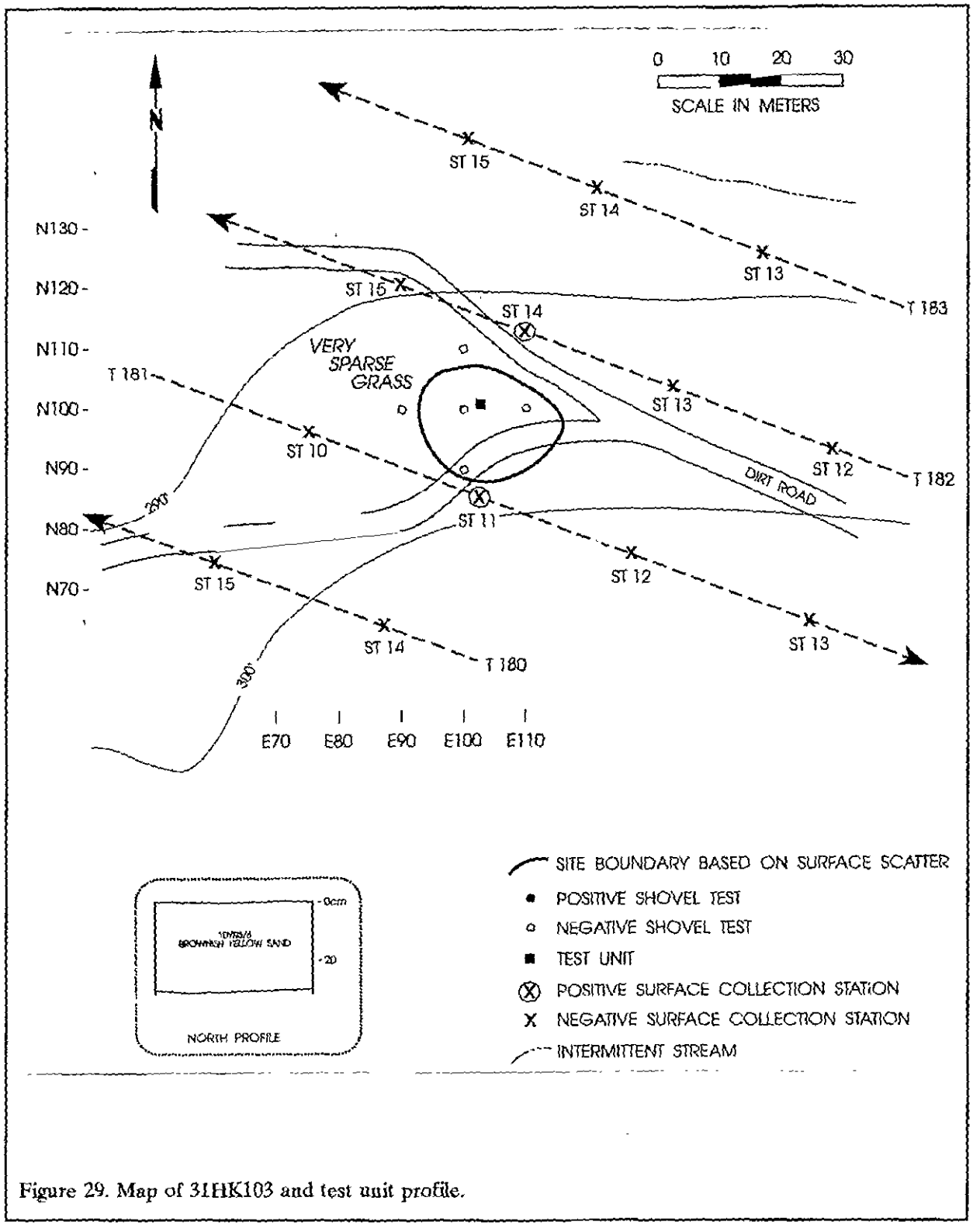

Figure 29. Map of 31HK103 and test unit profile.

No artifacts were encountered. A total of 22 artifacts was collected at the site.

The soil profile in the test unit consisted of 30 cm of brownish yellow sand (10YR6/6) (see Figure 29). Soils at the site are classified as Lakeland sands. In a typical Lakeland profile these brownish yellow sands are found at 130 to 155 cm below surface. This suggests that 31HK103 has suffered a great deal of erosion.

There is a significant difference in the site that Loftfield found and the site visited during the current survey. Although more striking than usual, this is typical of many of the previously identified sites where more diagnostic artifacts and more artifacts in general existed 16 years ago. Part of this is due to collectors taking the projectile points and other tools, but the sparsity of artifacts such as debitage may be a result of erosion or perhaps even collection.

31HK103 contained few artifacts, which consisted only of lithic debitage, and has been damaged by erosion, clear cutting, and road grading. It is unlikely that the site can address significant research questions. As a result, 31HK103 is recommended as not eligible for inclusion on the National Register of Historic Places.

31HK104

Site 31HK104 is located 2700 m north of Longstreet Road and 90 m west of Ray Road. The central UTM coordinates are N3890500 E669540. The site is located on an upland slope and the nearest source of water is 330 m to the east. The elevation is 103 m and it is 864 m^2 in size (Figure 30).

The site was originally identified by Loftfield (1979:G-63) where he collected one Morrow Mountain II projectile point. No additional remains were located and no subsurface testing was performed. Loftfield recommended no additional work at the site.

Vegetation at the site was sparse with most of the remains located in a dirt road and a turn-around. Collected from an area measuring 40 m east-west by 30 m north-south were 10 quartz interior flakes, seven metavolcanic interior flakes, and one jasper interior flake. A central shovel test was placed in the area of densest remains with four additional tests excavated at 10 m intervals in cardinal directions. All were excavated to approximately 35 cm below surface and none yielded artifactual remains. A 50 cm square test unit was also placed at the site and excavated to a depth of 41 cm below surface. No artifacts were recovered. A total of 18 artifacts was collected from 31HK104.

Soil profiles consisted of 20 cm of yellowish brown sand (10YR5/6) overlying 21 cm of strong brown sand (7.5YR5/8) (see Figure 30). The typical Ap horizon for Lakeland sands consist of approximately 15 cm of dark gray sand (10YR4/1) with the yellowish brown sands found below (Hudson 1984). This indicates that the site has been subjected to erosion.

No diagnostic artifacts were recovered to provide information regarding temporal placement and the site probably functioned as a lithic work station. No subsurface remains were recovered, the data sets consist only of lithic debitage, and the site has been badly damaged by erosion and road grading. It is unlikely that 31HK104 can address significant research questions and the site is recommended as not eligible for inclusion on the National Register of Historic Places.

31HK107

Site 31HK107 is situated 2000 m north of Longstreet Road and 300 m west of Ray Road. The central UTM coordinates are N3890120 E669210. The site is located on a small level area of an upland slope and the closest source of water is a springhead located 400 m to the east. The elevation at the site is 103 m and it is 844 m^2 in size (Figure 31).

The site was originally identified by Loftfield (1979:G-64) who collected one uniface knife fragment and 71 flakes. No subsurface testing was performed and no additional work was recommended.

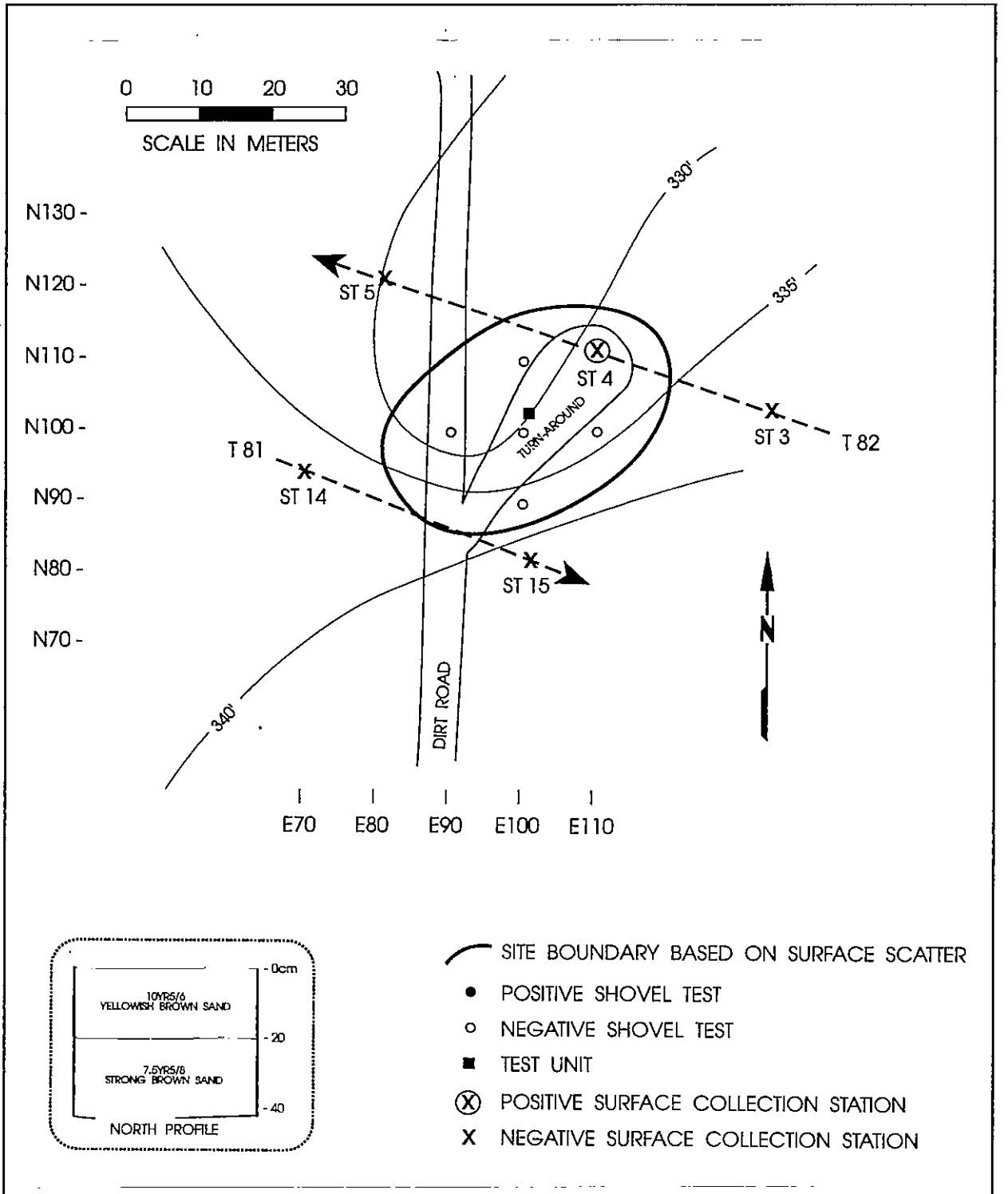

Figure 30. Map of 31HK104 and test unit profile.

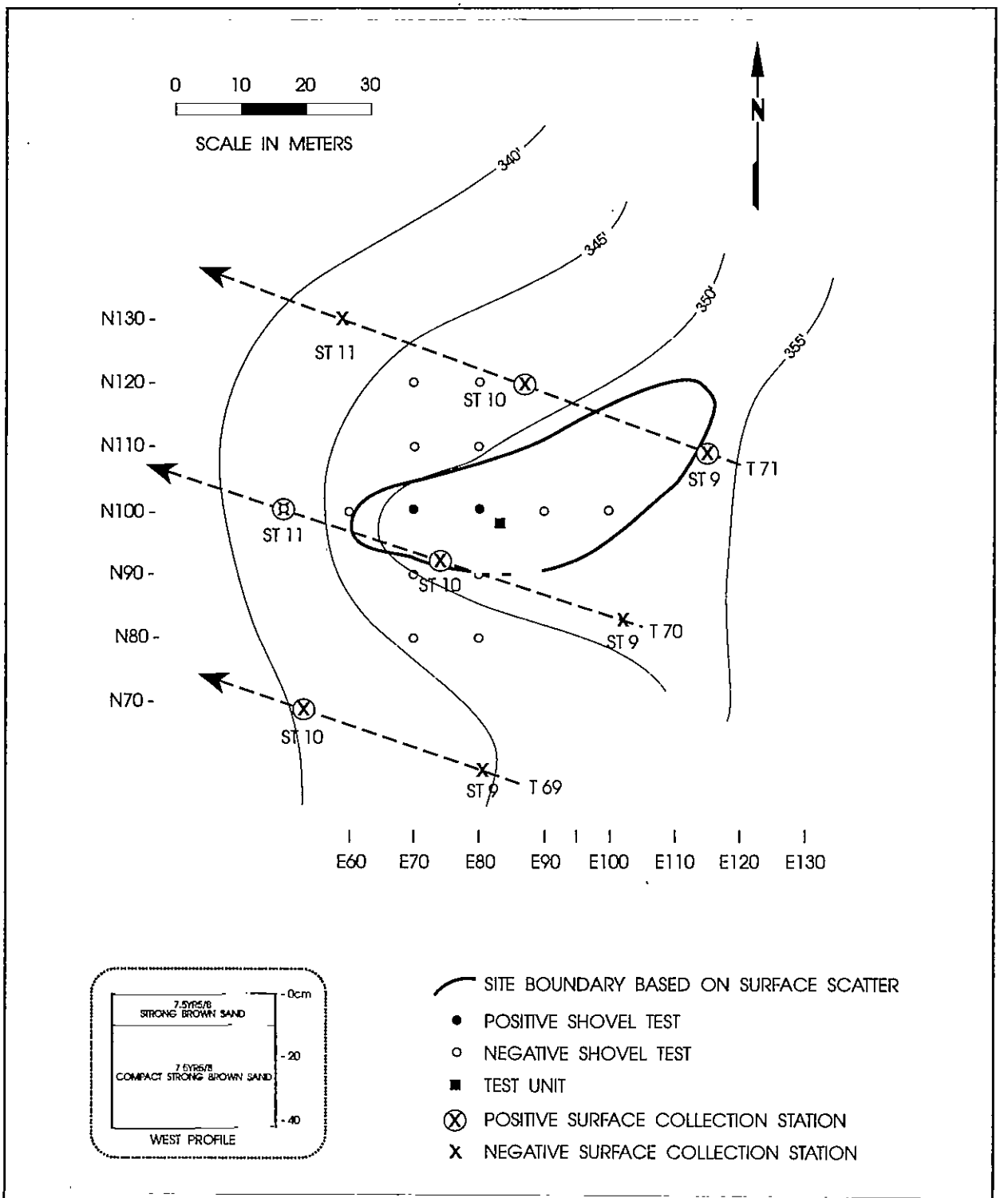

Figure 31. Map of 31HK107 and test unit profile.

Site 31HK107 is located in an area of sparse grass which provided good surface visibility. A collection of artifacts was made from an area measuring 55 m east-west by 20 m north-south. These artifacts consisted of 28 quartz interior flakes and one metavolcanic interior flake. Fourteen shovel tests were excavated at the site with two producing subsurface remains. These remains consisted of one quartz interior flake and one metavolcanic interior flake. The tests were excavated to depths ranging from 45 to 70 cm below surface. A 50 cm square test unit was also placed at the site which yielded a quartz interior flake in the top 10 cm. The unit was excavated to a depth of 40 cm below surface. The site produced a total of 32 artifacts.

The soil profile consisted of 10 cm of strong brown sand (7.5YR5/8) overlying 30 cm of compact strong brown sand (Figure 31). The soils are classified as Lakeland sands and typically these strong brown sands are found between 37 and 110 cm below surface (Hudson 1984). This suggests that the site has been subjected to a great deal of erosion and/or deflation.

Artifacts consisted of non-diagnostic lithic debitage indicating that the site probably functioned as a lithic work station. The site produced few subsurface remains and cannot address significant research questions. As a result, 31HK107 is recommended as not eligible for inclusion on the National Register of Historic Places.

31HK109

Site 31HK109 is located 1700 m north of Longstreet Road and 300 m west of Ray Road. The central UTM coordinates are N3889770 E669160. The site is located on a moderate sideslope with a springhead located about 400 m to the northeast. The elevation at the site is 106 m and it is 8,480 m^2 in size (Figure 32).

Site 31HK109 actually encompasses previously recorded 31HK109 and 31HK112. Since the North Carolina Office of State Archaeology does not typically assign multiple numbers to one site, this site is assigned the number 31HK109. The Office of State Archaeology will issue 31HK112 to a new site.

31HK109 was originally identified by Loftfield (1979:G-64) who collected from the site one projectile point tip, two blade fragments, one biface fragment, and 60 flakes. No subsurface testing was performed and no additional work was recommended.

31HK112 was initially identified by Loftfield (1979:G-65) who collected 14 flakes. No subsurface testing was done and no additional work was recommended.

Vegetation at the site consists of very sparse grass providing excellent surface visibility. Collected from the site were 42 quartz interior flakes, 13 metavolcanic interior flakes, one quartzite hammerstone, and one small unidentifiable prehistoric sherd in an area measuring 150 m east-west by 50 m north-south. Thirteen shovel tests were excavated in the site area at 30 m intervals on regular survey transects. In addition a shovel test was located in an area of dense surface remains with four additional tests excavated in cardinal directions at 10 m intervals. None of these yielded artifacts. A 50 cm square test unit was placed within the site boundaries which also yielded no subsurface remains. The test unit was excavated to a depth of 30 cm below surface. The site's surface collection yielded a total of 57 artifacts.

The soil profile consisted of 6 cm of brownish yellow sand (10YR6/6) overlying 26 cm of reddish yellow sand (7.5YR6/8) (Figure 32). Soils at the site are classified as Lakeland sands and typically the soils represented in the test unit do not occur until depths of about 110 cm below surface. This suggests that the site is badly eroded.

It should be noted that a very sparse distribution of artifacts was found between 31HK109 and 31HK435. By some definitions these two sites might be combined. However, we believed that they were separately created and the sparse artifacts between the two sites are a result of lateral movement caused by erosion. Therefore, we have chosen to separate the two sites.

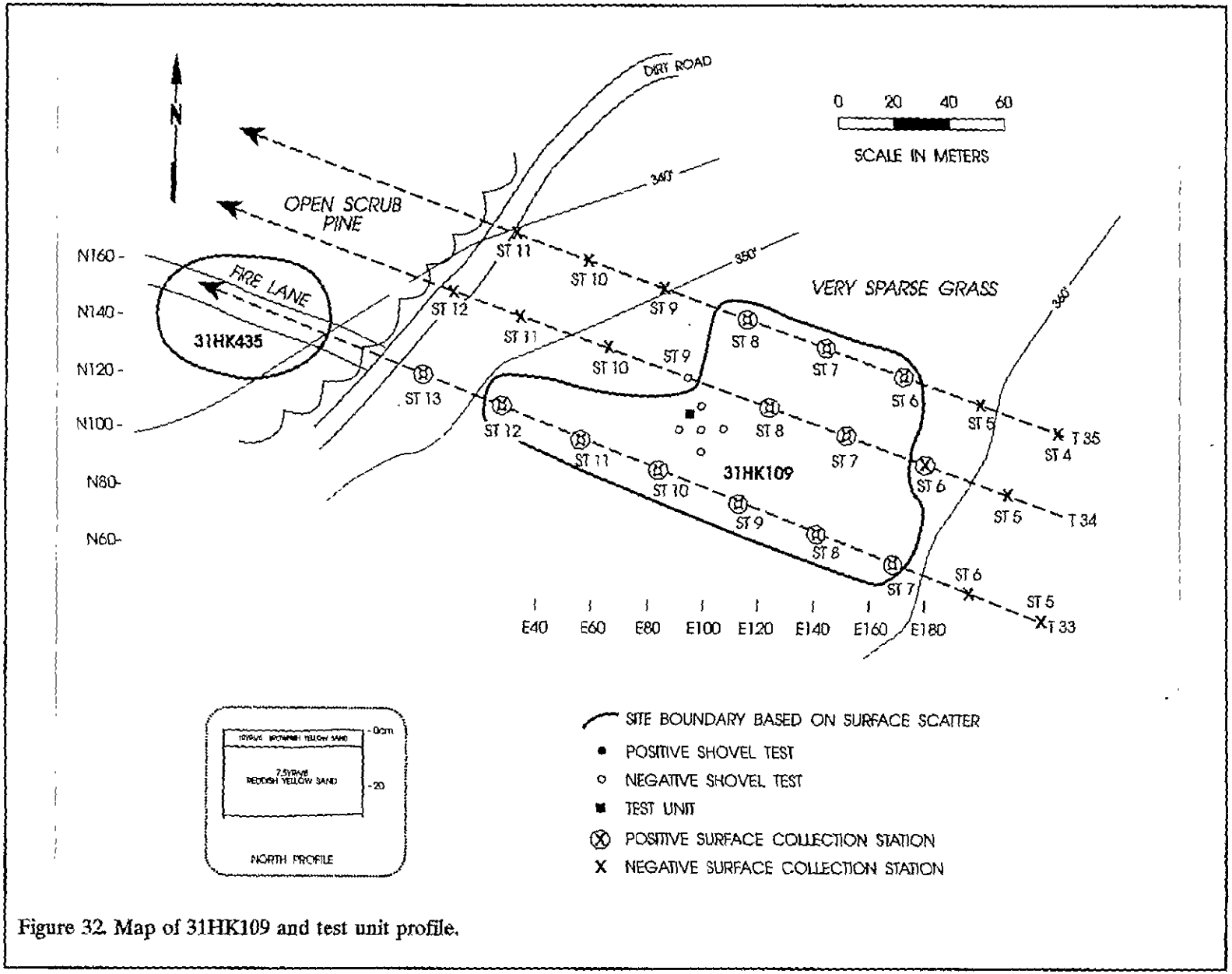

Figure 32. Map of 31HK109 and test unit profile.

The only diagnostic artifact collected at the site consists of one small unidentifiable sherd suggesting that 31HK109 dates to the Woodland Period and given the large quantity of lithic debitage the site was probably a lithic work station. The site is badly damaged by erosion and contains no subsurface remains. As a result, 31HK109 is recommended as not eligible for inclusion on the National Register of Historic Places.

31HK115

Site 31HK115 is situated 900 m north of Longstreet Road and 370 m west of Ray Road. The central UTM coordinates are N3889045 E668880. Topography consists of a gentle slope to the northwest with a large erosional gully found just southwest of the site. A springhead is located approximately 400 m to the west northwest. The site is at an elevation of 103 m and is 2644 m^2 in size (Figure 33).

The site was originally identified by Loftfield (1979:G-65) who collected one Hardaway projectile point, one Morrow Mountain I projectile point, four flakes, and one Yadkin Cord Marked sherd. No subsurface testing was done and Loftfield recommended that no further work be done at the site.

During the current investigations at 31HK115 vegetation in the vicinity of the site consisted of very sparse grass and occasional small pines. Surface visibility was excellent throughout the area. An area measuring 60 m east-west by 60 m north-south was surface collected. This collection yielded 175 quartz interior flakes, five metavolcanic interior flakes, one small prehistoric sherd, two unidentifiable Yadkin sherds, and one Yadkin Cord Marked sherd. A shovel test was placed near the center of the scatter and six additional shovel tests were placed at 10 m intervals in cardinal directions. In addition, one 50 cm square test unit was placed at the site. The shovel tests were excavated to approximately 40 cm below surface and none yielded artifactual remains. The 50 cm test unit was excavated to 26 cm below surface but yielded no artifactual remains. The site produced a total of 185 artifacts.

The soil profile of the 50 cm unit consisted of 20 cm of yellow brown sand (10YR5/6) overlying 6 cm of strong brown sand (7.5YR5/8) (see Figure 33). The typical dark gray sand Ap horizon associated with the Lakeland soils found at the site was absent, indicating that the site has suffered from erosion. The boundaries of the site consist of the 60 m by 60 m area of surface remains.

Artifacts from 31HK115 indicate that the site dates to the Yadkin phase and probably functioned as a lithic workshop or some other type of limited activity site. Since the site evidences erosion, with no artifacts found below surface, it is unlikely that 31HK155 can address any significant research questions regarding the Yadkin phase in the North Carolina Sandhills. As a result, site 31HK115 is recommended as not eligible for inclusion on the National Register of Historic Places.

31HK118

Site 31HK118 is situated approximately 550 m north of Longstreet Road and just west of Ray Road. The central UTM coordinates are N3888640 E668900. It extends from Ray Road, west to the top of a large flat knoll overlooking springheads to the east and to the northwest. The springhead to the east is about 350 m away while the springhead to the northwest is about 450 m away. The elevation at the site is 115 m and the site is 37,575 m^2 in size (Figure 34).

The site was originally identified by Thomas Loftfield (1979:G-66) who surface collected a large quantity of artifacts (n=1,667) which included two Hardaway, nine Palmer, one Lake Mohave, one Morrow Mountain, and eight Savannah River projectile points. Other artifacts included three projectile point bases, two projectile point fragments, 14 knives, one knife/scraper, three knife fragments, 11 bifaces/biface fragments, 28 scrapers, 13 blades/blade fragments, two cores, 14 retouched flakes, one utilized stone, and 1,529 flakes. In addition a small quantity (n=25) of grit tempered sherds was collected. No subsurface testing was done at the site and Loftfield recommended that additional testing be done to

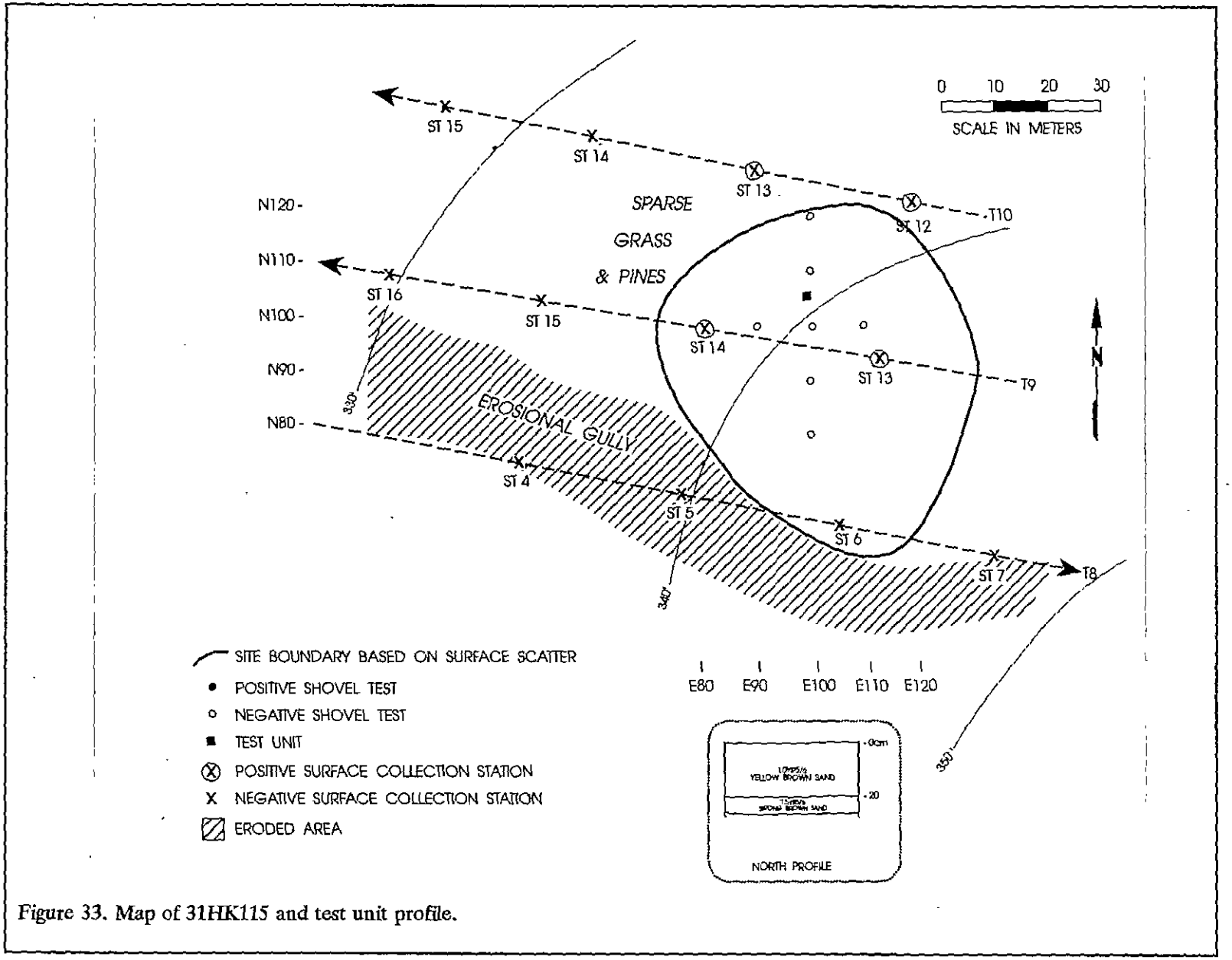

Figure 33. Map of 31HK115 and test unit profile.

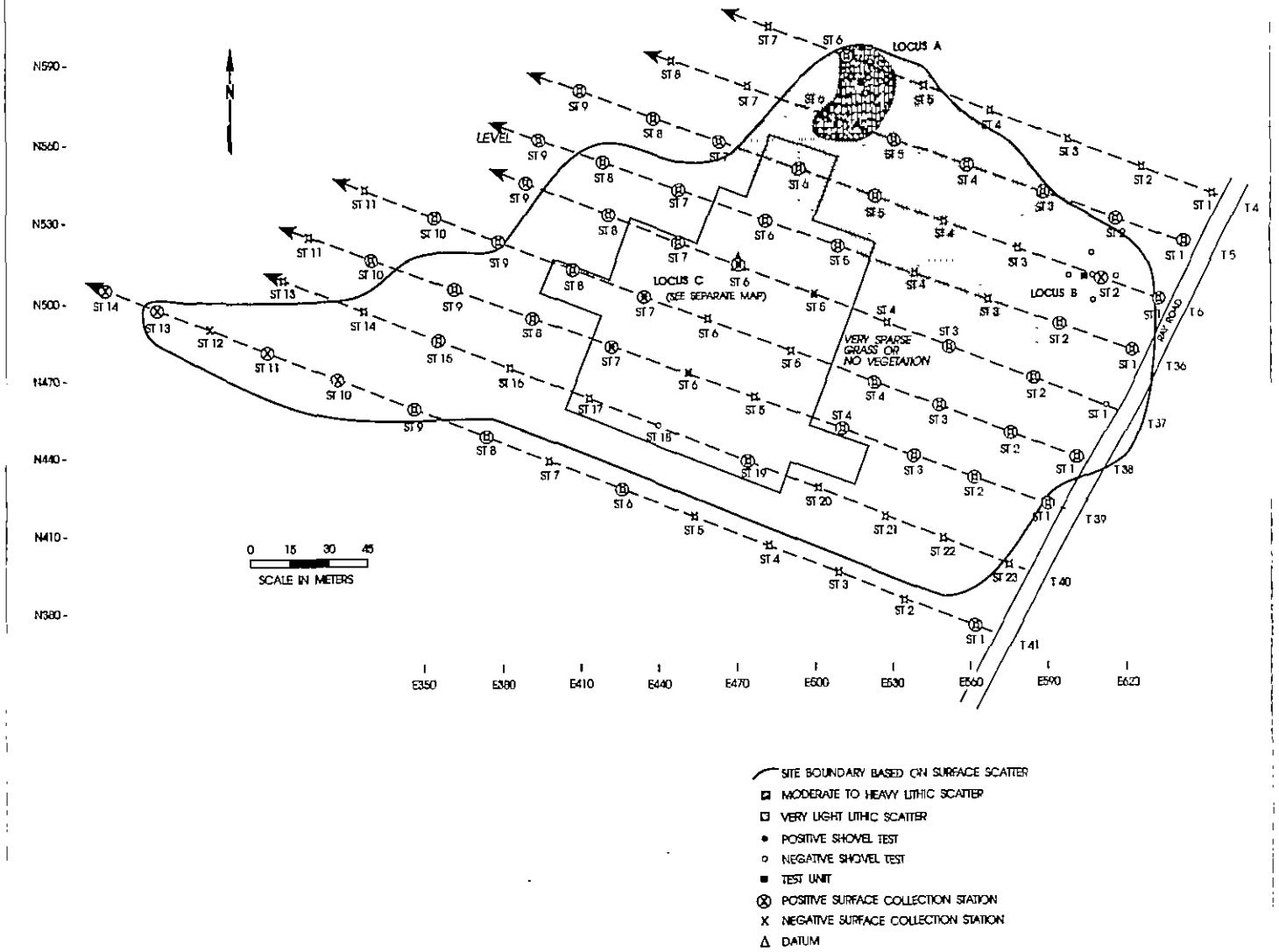

Figure 34. Map of 31HK118 showing the location of Loci A - C (see Figure 36 for detailed view of Locus C).

determine National Register eligibility.

Approximately 15 years later, Chad Braley and Joseph Schuldenrein (1993) briefly visited the site while doing archaeological survey elsewhere on the drop zone and noted "discrete clusters of quartz debitage, fire-cracked rock, and other artifacts lying on the surface" (Braley and Schuldenrein 1993:52).

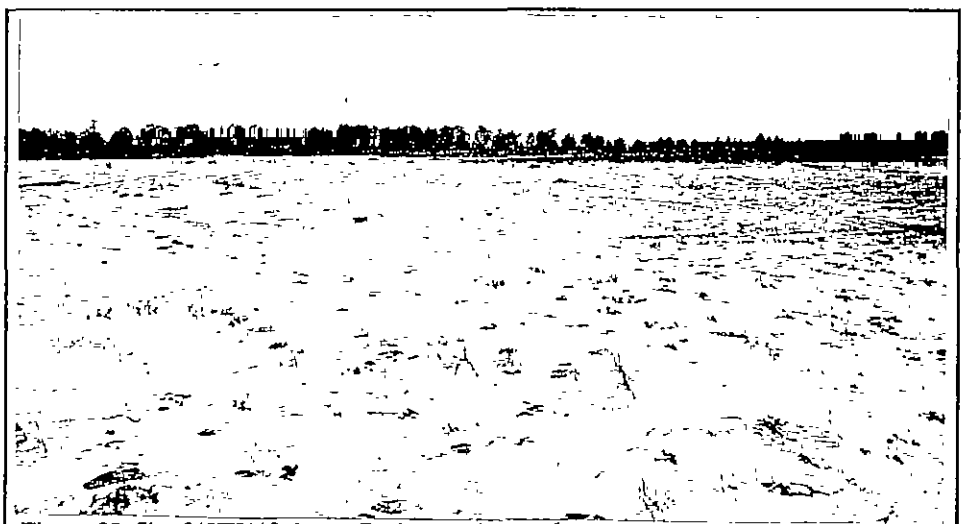

Figure 35. Site 31HK118, locus C, view to the south.

During the current investigations at 31HK118, like most areas of the drop zone, vegetation was sparse and consisted primarily of weedy grasses. In the densest area of surface artifacts, the ground surface was virtually devoid of vegetation (Figure 35). It was also in this area that the surface soils consisted of strong brown sand (7.5YR5/8). According to the soil survey for Cumberland and Hoke counties (Hudson 1984) the site area contains excessively drained Lakeland soils. Typically, Lakeland series soils consist of an Ap horizon of 0-15 cm of dark gray sand (10YR4/1) overlying 15 to 37 cm of yellowish brown sand (10YR5/6). Beneath this layer lies the strong brown sand (7.5YR5/8) between 37 to 110 cm (Hudson 1984:82). This suggests that the site is badly deflated by perhaps 37 cm or more.

Nine regular transects at 30 m intervals (transects 4-6 and 36-39) intersected 31HK118. On these transects within the boundaries of the surface remains a total of 65 shovel tests were excavated at 30 m intervals with only 15 yielding subsurface remains. These remains are listed in Table 7. Site 31HK118 was initially defined as containing three loci: A, B, and C. All of these loci were later found to "bleed" in together with locus C containing the vast majority of artifacts. The entire site measures 375 m east-west by 210 m north-south based on surface remains. Each of the loci were surface collected and tested separately.

Locus A consisted of a small surface scatter of lithic debitage which included nine quartz interior flakes and three metavolcanic interior flakes. Five shovel tests were excavated at 10 m intervals from a central shovel test at the site to depths of about 35 cm. None of these tests yielded artifacts. In addition a 50 cm square unit was excavated in the center of the locus to 45 cm below surface. No artifacts were recovered. The profile consisted of 30 cm of yellowish brown sand (10YR5/6) overlying 15 cm of dark yellowish brown sand (10YR4/4). Locus A measures 15 m east-west by 30 m north-south.

Locus B consists of a large surface scatter of lithic debitage (75 m east-west by 60 m north-south). Surface collected from locus B were 75 quartz interior flakes, one chunk of quartz raw material, one bifacially worked quartz flake, three quartz projectile point fragments, 34 metavolcanic interior flakes, one metavolcanic utilized secondary flake, and five small unidentifiable prehistoric sherds.

All three projectile point fragments probably represent small triangular Caraway points. Available measurements are provided in Table 8. These Late Woodland points along with the prehistoric pottery indicate that this area of the

Table 7.
Artifacts from 31HK118, Locus C

	Quartz			Metavolcanic					
	Debitage	Bifaces	Other Tools	Debitage	Bifaces	Other Tools	FCR	Sherds	Total
Locus C, gen. surface	91	1	2	31		2	2		129
Locus C, controlled surface									
N395E425	20			4					24
N395E440	11			1					12
N410E410	9			5					14
N410E425	40			12					52
N410E440	46			21					67
N410E455	12		1	19	1			1	34
N410E470	31			7					38
N410E485	22			12					34
N410E515	2								2
N410E530				1					1
N425E395	4								4
N425E410	13			9					22
N425E425	41			9				1	51
N425E440	37	1		11					49
N425E455	44		1	20					65
N425E470	19			5					24
N425E485	9			18					27
N425E500	1								1
N425E515	3			2					5
N425E545	3								3
N440E410	1			2		1			4
N440E425	84			8	1		4		97
N440E440	3			3					6
N440E455	77	1		36					114
N440E470	21			13					34
N440E485	27			33					60
N440E500	17			14				1	32
N440E515	4			3				2	9
N455E440	32			5					37
N455E455	26			45		1			72
N455E470	22			18			1		41
N455E485	6			6					12
N455E500	6			8				2	16
N455E515	2			1					3
N470E440	10			2					12
N470E455	30			17					47
N470E470	44		1	24					69
N470E485	51			56				5	112
N470E500	22			17	1		7		47
N470E515	9			3					12
N470E530	1								1
N485E440	4			1					5
N485E455	61			20					81
N485E470	53			50				2	105
N485E485	17			21				1	39
N485E500	6			16					22
N485E515	1			1					2
N485E530	1								1
N500E470	23			12					35
N500E485	7			7					14
N500E500	7			6					13
N500E515	4			4					8
N515E470	64		1	12			1	1	79
N515E485	1			1					2
N515E500	3			2					5
N515E515				2				1	3
N530E455	2			1					3
N530E470				1					1
N530E485	4			7					11
Locus C, Shovel Tests									
N410E425	3								3
N425E395	1								1
N425E425	1								1
N425E515				1					1
N440E430				1					1
N440E440	1								1
N440E485	1								1
N440E515	1								1
N470E485	1			5					6
N500E455	1								1
N500E470	1								1
N500E500				1					1
N515E470	1								1
N530E455	1								1
N530E485				1					1
Locus C, TU1, 0-10 cm.				1					1
Total	1224	3	6	675	3	4	15	17	1947

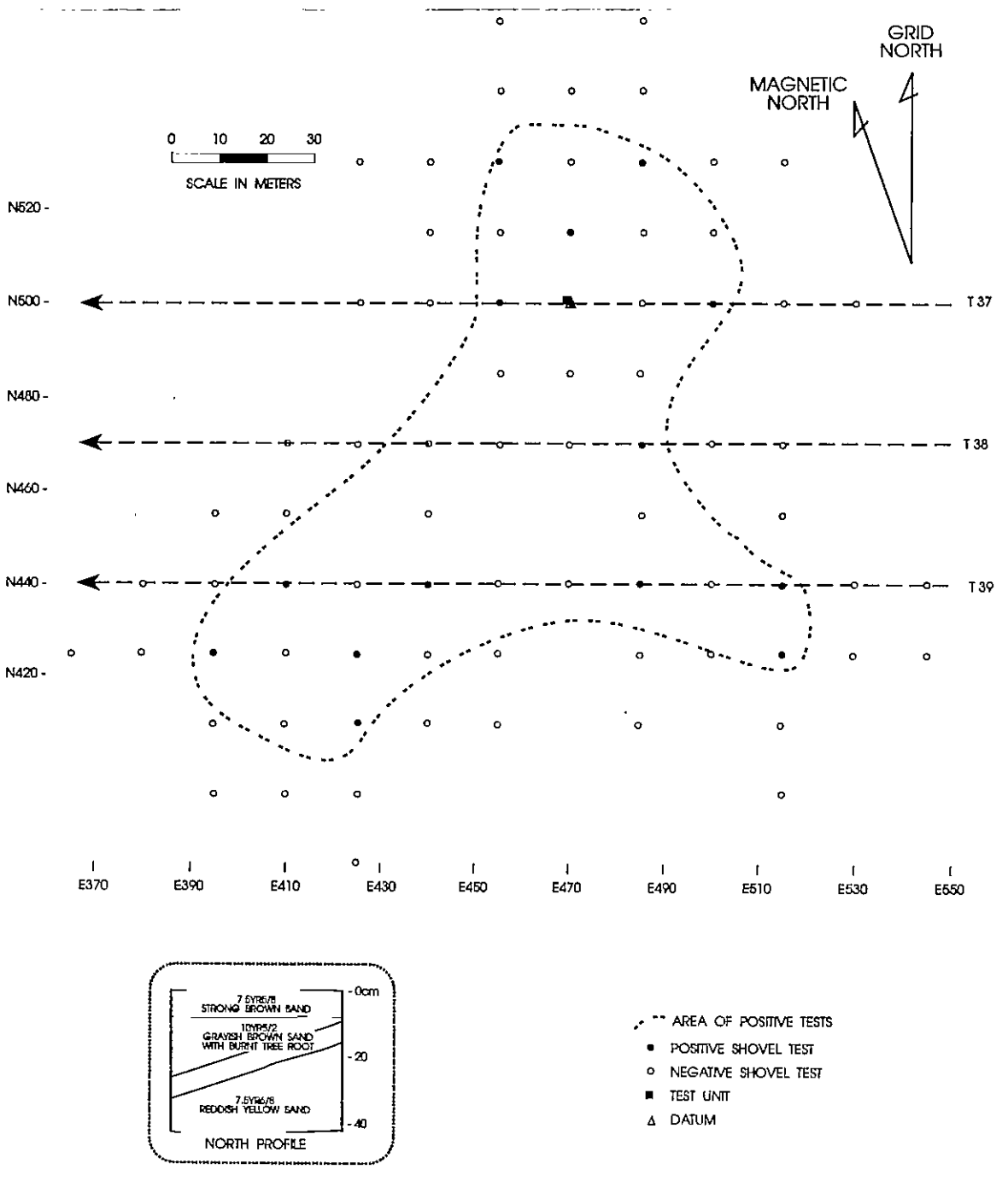

Figure 36. Map of 31HK118, Locus C and test unit profile.

site was primarily used during the Late Woodland period.

Five shovel tests were excavated at 10 m intervals from a central shovel test at the locus to depths of 30 to 50 cm. None of these tests yielded artifacts. In addition a 50 cm square unit was excavated near the center of the locus to 27 cm below surface. No artifacts were recovered. The profile consisted of 23 cm of yellowish brown sand (10YR5/6) overlying 4 cm of strong brown sand (7.5YR5/8).

Locus C consists of a large and dense scatter of lithic debitage (375 m east-west by 165 m north-south) with small amounts of prehistoric pottery. During initial 30 m interval shovel testing across the site, all five positive shovel tests were located within locus C. These shovel tests were used as guide points for closer interval shovel testing at 15 m. This close interval shovel testing resulted in the excavation of 77 tests (including the initial five positive tests) with a total of 15 positive shovel tests (Figure 36). These tests were excavated to a depth of 60 to 100 cm. The majority of the tests yielded artifacts only in the top 20 cm. One 50 cm square unit was excavated 7 m grid south of N500E470. This test was excavated to a depth of 42 cm below surface. Only one artifact, a metavolcanic interior flake, was recovered which was found in the top 10 cm of the unit. The soil profile consisted of 8 cm of strong brown sand (7.5YR5/8) overlying grayish brown soil with a tree burn in it to a depth of 16 to 35 cm, overlying reddish yellow sand (7.5YR6/8) (see Figure 36).

Table 8.
Measurements of Caraway projectile point fragments at Locus B (in mm)

	#1	#2	#3
Length	-	-	-
Width	20.07	20.90	-
Thickness	4.57	4.92	4.09

In addition to the close interval shovel testing, a controlled surface collection was performed in the central, most dense, portion of locus C. A total area of 15,075 square m was collected using 67 15-m collection squares. Figures 34 through 37 show the density of remains across the core of the site. Figures 37 and 38 show quartz and metavolcanic debitage across the site. Although quartz is more numerous, their distributions are very similar. Tools (Figure 39) also show a distribution similar to the lithic debitage. However, the small amount of pottery retrieved from the site shows a different distribution, with the remains located primarily on the northeastern and eastern edge of the lithic concentration (Figure 40). This may reflect different land use patterns between the Archaic and Woodland Periods.

Artifacts from locus C consist of debitage (n=1,899); bifaces, including projectile points and preforms (n=6); other tools, such as hammerstones, utilized flakes, etc. (n=10); fire cracked rock (n=15); prehistoric pottery (n=17) for a total of 1,947 artifacts (see Table 7).

It is interesting to note that of the debitage from locus C, 64.4% consisted of quartz with the remaining 35.6 being metavolcanic. While the Carolina "slate belt" is relatively close to the project area, with the closest outcrop located 16 km west of Fort Bragg, apparently the prehistoric people chose to take advantage of the quartz river cobbles found in Lower Little River located just north of the project area or other nearby large streams.

The debitage from 31HK118 locus C consisted almost entirely of interior flakes. However, one fragment of metavolcanic cortex was collected as well as one metavolcanic secondary flake. Other quartz debitage consisted of two primary flakes and two secondary flakes. These fragments of quartz exhibited a rounded outer surface consistent with water worn river cobbles.

Bifaces include three snapped quartz bifaces, one metavolcanic biface, one metavolcanic projectile point tip, and one metavolcanic Palmer projectile point. The following measurements for the Palmer point were taken: length — 32.60 mm; blade length — 28.36 mm; blade width — 18.07

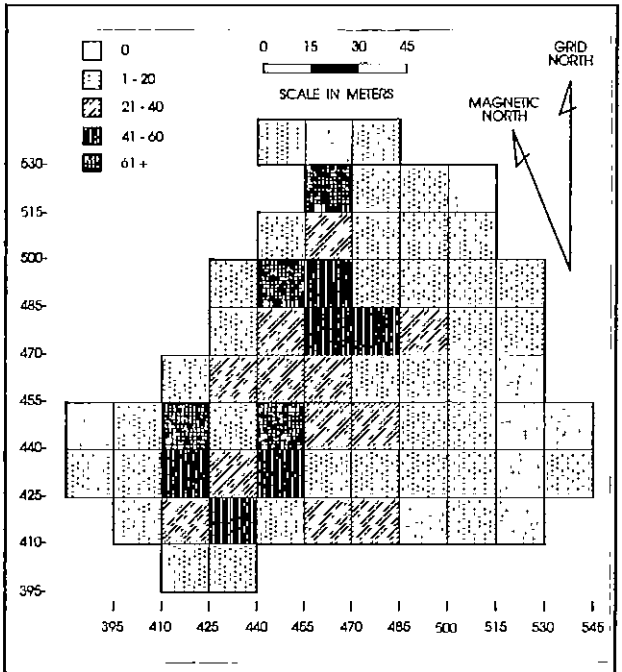

Figure 37. 31HK118, Locus C, surface distribution of quartz debitage.

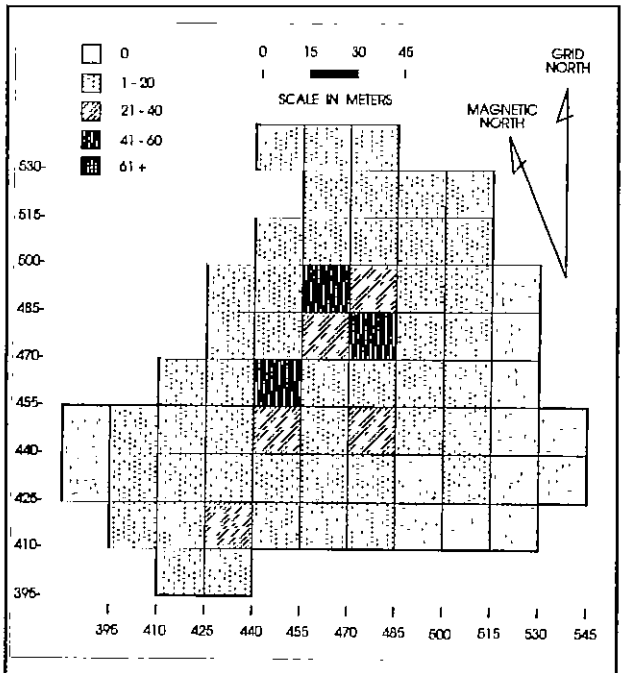

Figure 38. 31HK118, Locus C, surface distribution of metavolcanic debitage.

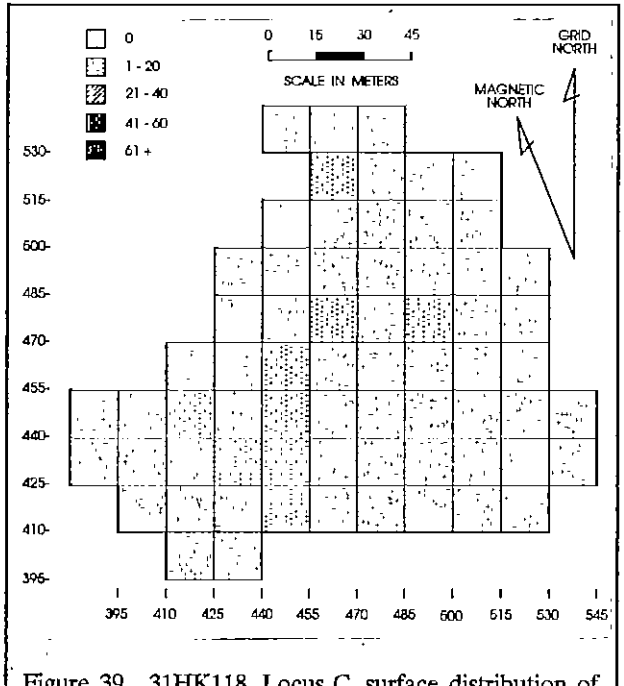

Figure 39. 31HK118, Locus C, surface distribution of lithic tools.

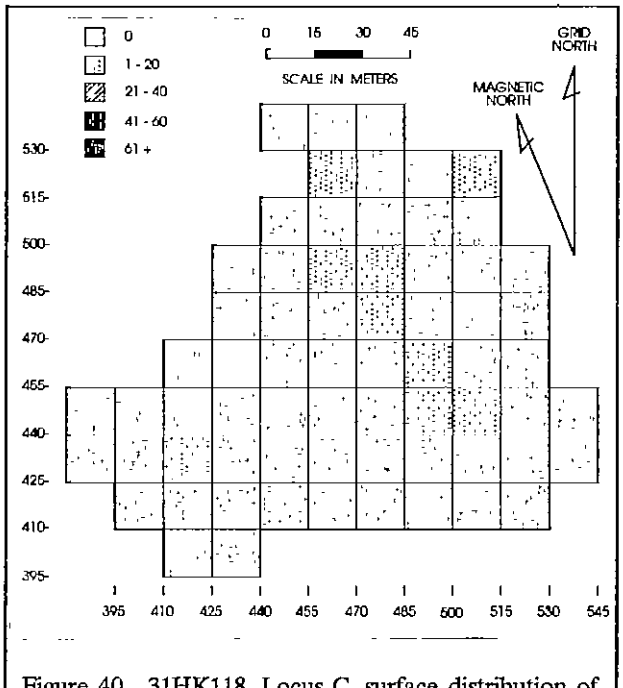

Figure 40. 31HK118, Locus C, surface distribution of pottery.

mm; haft width — 13.59 mm; and thickness — 5.43 mm. This Palmer was collected during controlled surface collection at N470E500.

Other tools consisted of two quartz cores, one quartz hammerstone, one quartz uniface fragment, two quartz scrapers, three metavolcanic utilized flakes, and one piece of metavolcanic raw material. Measurements taken on the two scrapers are provided in Table 9.

The site produced a total of 17 sherds. All were small (less than 2.5 cm) and could not be further analyzed.

Very few diagnostic artifacts were recovered during surface collection and shovel testing of 31HK118. This is primarily due to the fact that the site is a favorite spot for collectors since it has, in the past, yielded numerous Paleoindian through Woodland Period artifacts (Braley and Schuldenrein 1993). The site also yielded small quantities of other tools such as scrapers, gravers, ground stone tools, and hammerstones. Many of these types of artifacts have also probably been collected from the site. This is unfortunate since even though the site is badly deflated, gathering good samples of the whole range of tools and debitage would greatly assist in better understanding the activities at site. Because of the lack of diagnostic data obtained during this survey, little can be said about the site's ability to address significant research questions. However, since the site has demonstrated that there are still subsurface remains, additional testing should help to determine what components are still intact and what types of questions the site can address. Since only about the bottom 20 or 30 cm of artifact bearing soil is left, the site may be able to address questions regarding the earliest occupants of 31HK118. Little is known about Paleoindian settlement and subsistence or changes in settlement and subsistence from the Paleoindian to the Archaic Periods. Site 31HK118 is recommended as potentially eligible for inclusion on the National Register of Historic Places.

31HK124

Site 31HK124 is located 430 m north of Longstreet Road and 390 m west of Ray Road. The central UTM coordinates are N3888490 E668760. The topography at the site is flat. A springhead is located approximately 700 m to the north. The elevation at the site is 115 m and it is 4,680 m^2 in size (Figure 41).

The site was originally identified by Loftfield (1979:G-67) who surface collected one scraper, 75 flakes, and five heavy grit tempered sherds from the site. No subsurface testing was performed and no additional work was recommended.

Vegetation at the site consists of very sparse grass which provided excellent surface visibility. An area measuring 120 m northwest-southeast by 40 m southwest-northeast was collected revealing two concentrations of artifacts. In the northernmost surface scatter 22 quartz interior flakes, six metavolcanic interior flakes, and one metavolcanic biface tip were collected. In the southernmost scatter 42 quartz interior flakes, two quartz secondary flakes, one quartz primary flake, four metavolcanic interior flakes, one broken metavolcanic biface, and one quartzite cobble were collected. Central shovel tests were placed in the center of each scatter and four cardinal shovel tests were placed at 10 m intervals at each scatter for a total of 10 shovel tests. All were excavated to a depth of 35 to 40 cm. None of these yielded subsurface remains. A 50 cm square unit was also placed at the site. The test was excavated to 30 cm below surface which yielded no artifacts. Collected from the site were 77 artifacts.

Table 9.
Measurements on surface collected scrapers from Locus C

	N470E470	N515E470
Length	35.85 mm	40.09 mm
Width	21.36 mm	36.96 mm
Thickness	14.61 mm	15.93 mm
Edge Angle	62.0°	54.5°
Weight	17.83 g	23.06 g

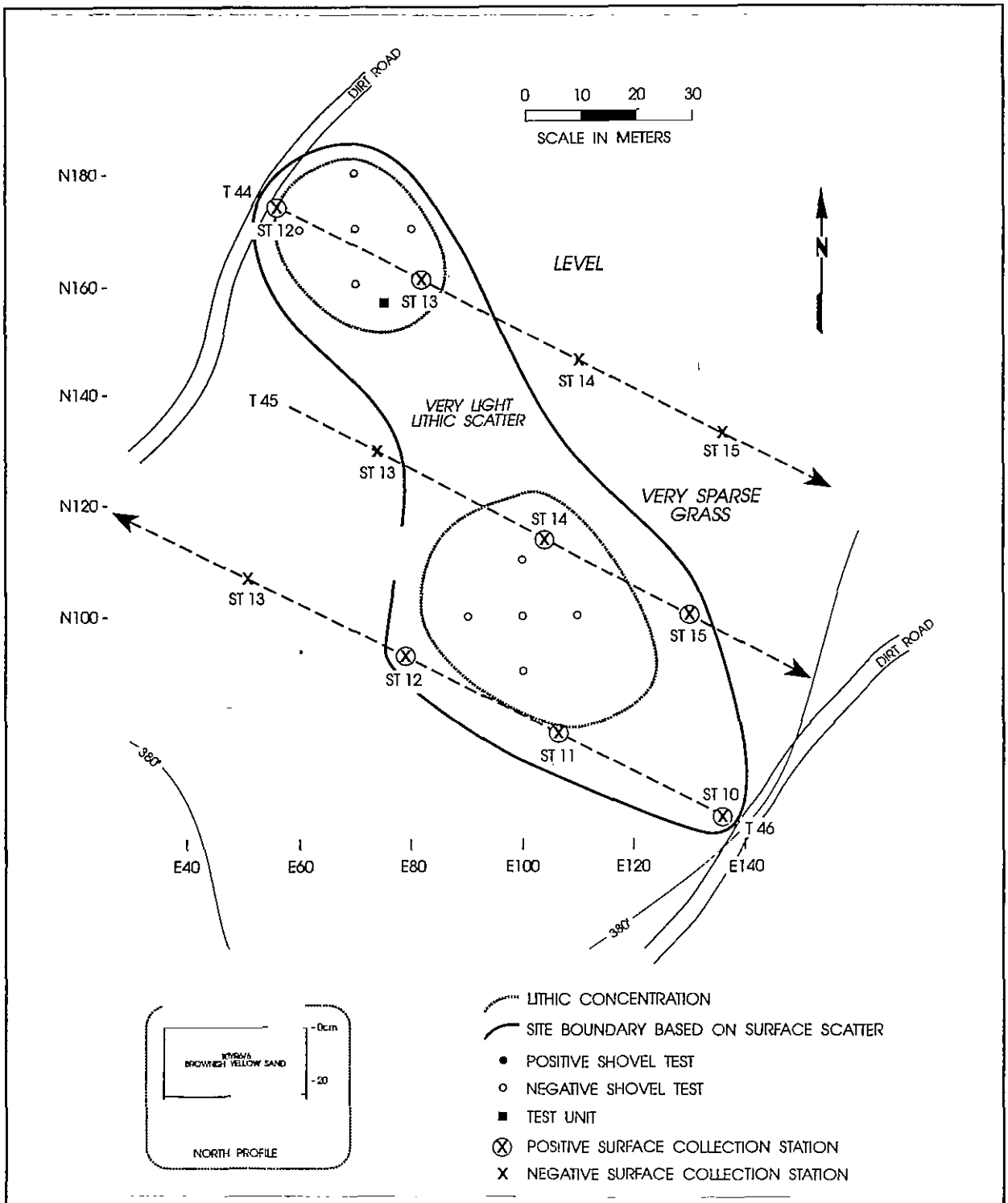

Figure 41. Map of 31HK124 and test unit profile.

The soil profile in the 50 cm unit consisted of brownish yellow sand (10YR6/6) to the base of the unit (see Figure 41). This profile suggests that the site has experienced a great deal of deflation since typically in Lakeland series soils, brownish yellow sand is not encountered until 130 to 155 cm below surface (Hudson 1984).

No diagnostic artifacts were found at 31HK124 and it is likely that the site represents a lithic work station. Given its proximity to 31HK118 it is possible that 31HK124 is a product of its occupation. Since it has exhibited a great deal of erosion and lacks subsurface remains, it is unlikely the 31HK124 can address significant research questions. As a result, it is recommended as not eligible for inclusion on the National Register of Historic Places.

31HK125

Site 31HK125 is located 450 m north of Longstreet Road and 450 m east of Ray Road. The central UTM coordinates are N3888600 E668660. The topography at the site is level. A springhead is located 600 m to the north and the closest edge of site 31HK118 is located about 90 m to the east. It is possible that 31HK125 is a product of 31HK118. The elevation at the site is 115 m and it is 56 m^2 in size (Figure 42).

The site was originally identified by Loftfield (1979:G-68) who collected one uniface knife, one biface fragment, and six flakes. He recommended that no additional work take place at the site.

Vegetation at the site consists of sparse grass providing good visibility. A surface collection was made in a 10 m by 10 m area which yielded one quartz interior flake, 44 metavolcanic interior flakes, one snapped metavolcanic biface, and one quartz fire cracked rock. A shovel test was placed in the center of this scatter which yielded four metavolcanic interior flakes. Eight additional tests were excavated at 10 m intervals in cardinal directions. None of these yielded subsurface remains. A 50 cm test unit was place immediately adjacent to the central shovel test yielding artifacts within the top 14 cm. The test was taken to a depth of 34 cm below surface. The unit yielded 24 metavolcanic interior flakes. The majority of the artifacts came from 0-10 cm and the remaining came from 10-20 cm. A charcoal sample was taken from the unit. It was unclear from the plan or profile if the charcoal represented prehistoric remains or a tree burn.

The soil profile in the 50 cm unit consisted of 14 cm of brown sand (10YR4/4), over 15 cm of yellowish brown sand (10YR6/6) with charcoal, over 3 cm of yellow sand (10YR7/6) over 2 cm of strong brown sand (10YR5/8) (see Figure 42). Soils at the site are classified as Lakeland sands. The presence of a dark Ap horizon suggests that the site has suffered little from erosion.

It is recommended that additional testing take place at the site to determine its ability to address significant research questions. The debitage collected from the site all appears to be the same raw material (porphorytic rhyolite). It is possible that the remains represent one episode of lithic reduction and can address significant questions regarding stone tool manufacture, particularly if diagnostic remains can attach the site to a time period. Work at 31HK125 may also be able to provide answers to questions regarding the lifestyle of those occupying 31HK118. As a result, 31HK125 is recommended as potentially eligible for inclusion on the National Register of Historic Places.

31HK126

Site 31HK126 is located 2500 m north of Longstreet Road and 250 m east of Ray Road. The central UTM coordinates are N3890500 E669850. The site is situated on a drainage sideslope and the nearest source of water is a springhead located 60 m to the north. The elevation at the site is 97 m and it is 240 m^2 in size (Figure 43).

The site was originally identified by Loftfield (1979) who collected one Morrow Mountain II projectile point, one Palmer variant, one utilized flake, and 24 flakes. No subsurface testing was performed and additional testing was recommended.

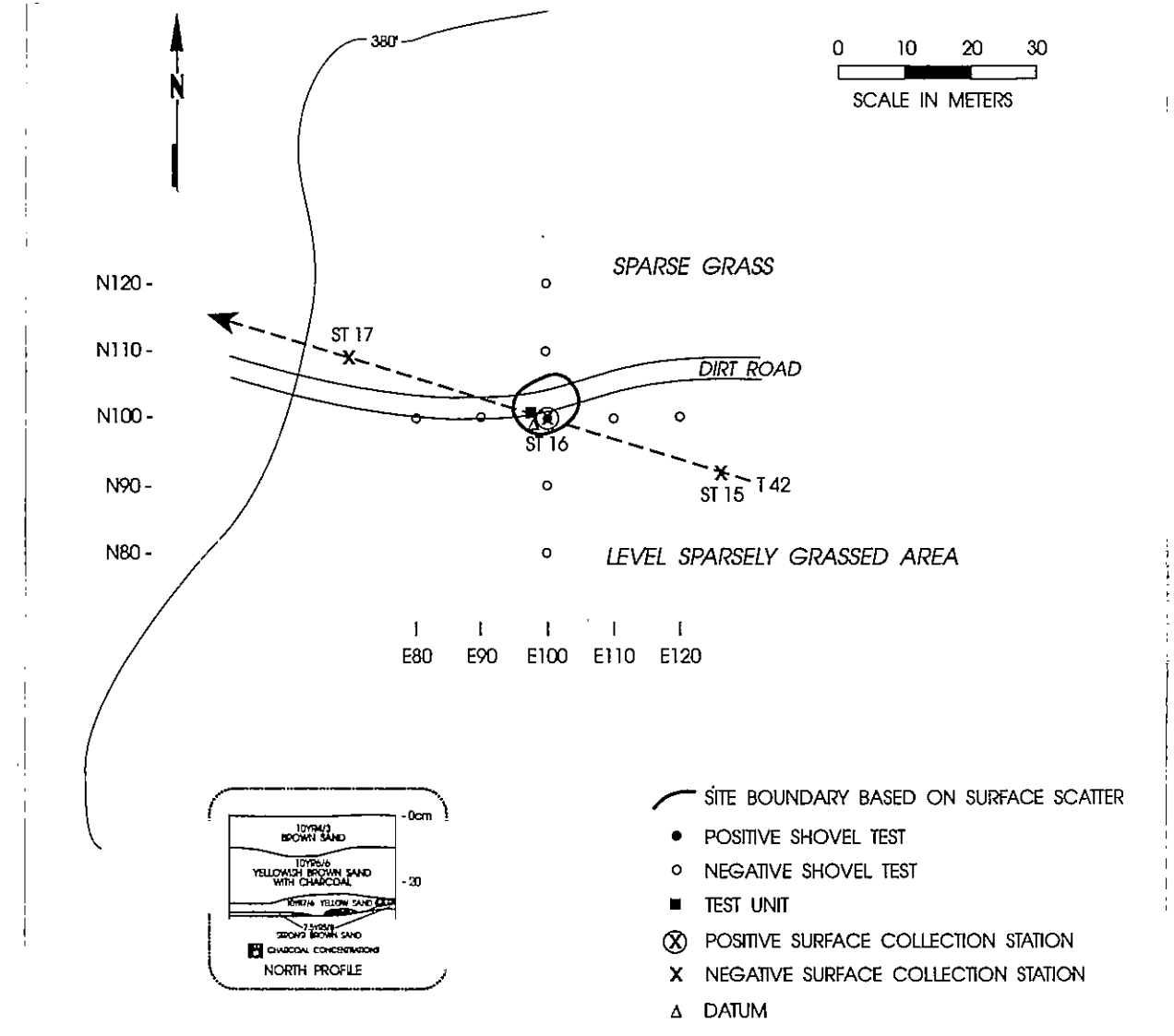

Figure 42. Map of 31HK125 and test unit profile.

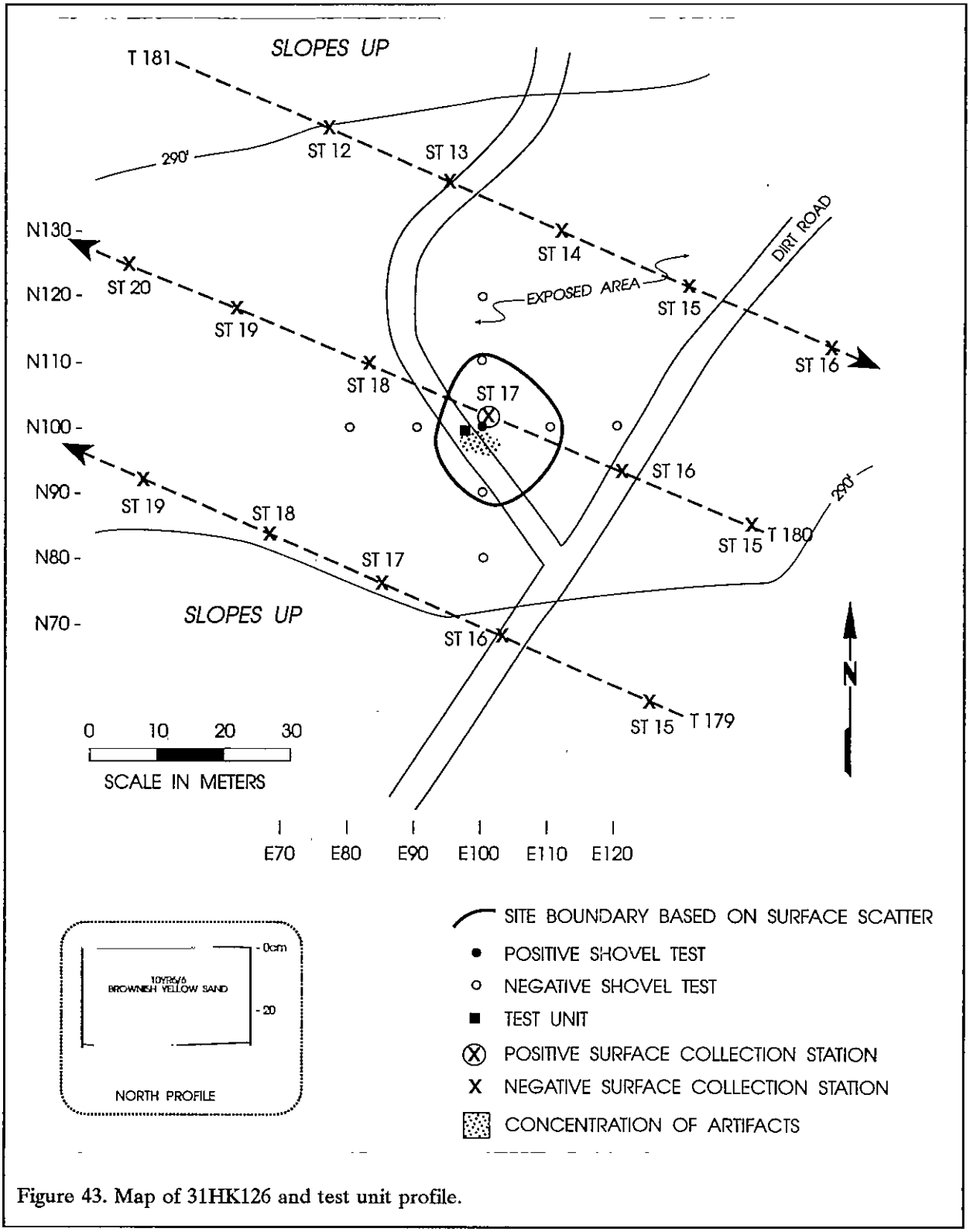

Figure 43. Map of 31HK126 and test unit profile.

The site is virtually devoid of vegetation and has been damaged by road grading. However, both circumstances provided excellent visibility and a surface collection was made in an area measuring 21 m north-south by 16 m east-west. This collection consisted of 48 quartz interior flakes, one quartz primary flake, one quartz secondary flake, one quartz uniface fragment, 42 metavolcanic interior flakes, one metavolcanic secondary flake, one raw material, and two quartz scrapers. Measurements for the scrapers are provided in Table 10.

A centrally located shovel test was excavated in the vicinity of a surface concentration. This test yielded one metavolcanic interior flake. Eight additional tests were excavated in cardinal directions at 10 m intervals. All tests were excavated to a depth of between 55 and 68 cm below surface and none yielded remains. A 50 cm square unit was also place at the site and excavated to a depth of 30 cm below surface. No artifacts were encountered. A total of 98 artifacts were recovered from 31HK126.

The soil profile consisted of brownish yellow sand (10YR6/6) to the bottom of the test unit (see Figure 43). The soils are classified as Lakeland sands which typically do not have brownish yellow sand until a depth of about 44 cm below surface (Hudson 1984). This indicates that the site has been severely damaged by erosion.

No diagnostic artifacts were recovered to place the site temporally. Given the artifacts present (debitage, scrapers, etc.) the site was probably a limited activity site. 31HK126 has been damaged by erosion, road grading, and clear cutting. The site produced few subsurface remains and is unlikely able to address significant research questions. As a result the site is recommended as not eligible for inclusion on the National Register of Historic Places.

31HK128

Site 31HK128 is located 2830 m north of Longstreet Road and 370 m east of Ray Road. The central UTM coordinates are N3890720 E670170. The site is situated on a slight upland slope and the closest source of water is located 150 m to the south. The elevation at the site is 94 m and it is 68 m^2 in size (Figure 44).

The site was originally identified by Loftfield (1979:G-69) who collected one Pee Dee triangular projectile point, two scrapers, 50 prehistoric sherds, and 24 flakes. No subsurface testing was performed and he recommended additional work to determine National Register eligibility.

Vegetation at the site consisted of moderate grass which provided relatively poor visibility in the immediate area. However, a dirt road runs northeast to southwest through the site which exposed a number of prehistoric sherds in the southeast bank of the road. Collected from this area were seven Yadkin Cord Marked sherds and 18 small unidentifiable sherds. A shovel test was placed in the center of the concentration. This test which was placed at T193ST16 was excavated to 40 cm below surface and yielded four Yadkin Cord Marked sherds and one small sherd. Eight additional shovel tests were excavated in cardinal directions at 10 m intervals to the same depth and none yielded artifactual remains. A 50 cm square test unit was placed adjacent to the positive shovel test and excavated to 30 cm below surface. In the first 10 cm one Yadkin Cord Marked sherd and five small sherds were recovered, with four Yadkin Cord Marked sherds found in the second 10 cm level. No artifacts were recovered below 20 cm. The site produced a total of 40 artifacts.

The soil profile consisted of 10 cm of dark gray sand (10YR4/1) overlying 10 cm of yellowish brown sand (10YR5/6) (see Figure 44). The soil series is Lakeland which typically produces a similar profile (Hudson 1984). This suggests that although the site has been damaged by a road cut

Table 10.
Measurements from scrapers at 31HK126

	#1	#2
length	30.79 mm	24.81 mm
width	29.59 mm	39.16 mm
thickness	8.04 mm	5.9 mm
angle	22.75°	49.50°
weight	8.67 g	7.86 g

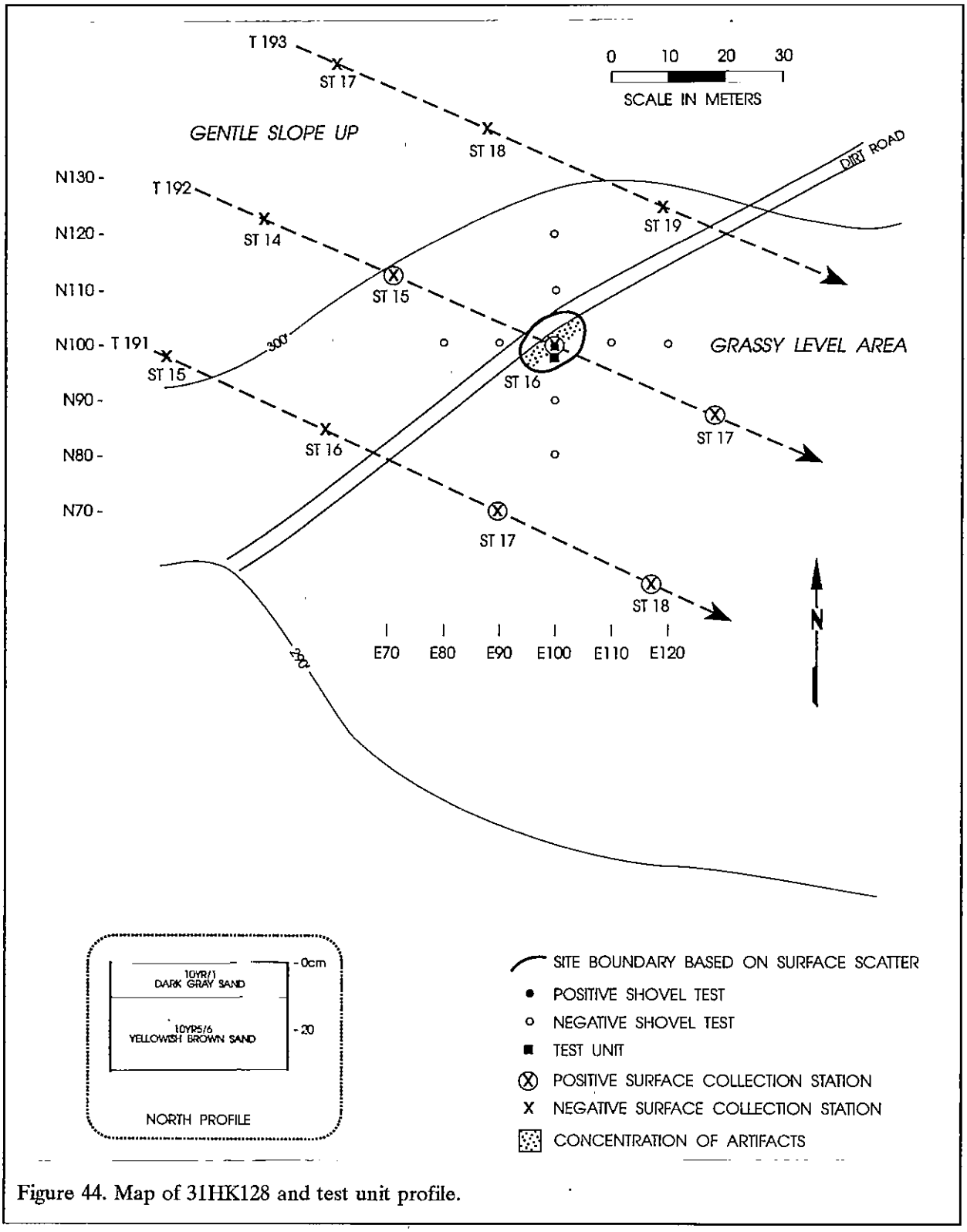

Figure 44. Map of 31HK128 and test unit profile.

and clear cutting, it has not suffered significantly from erosion.

Site 31HK128 dates to the Middle Woodland Period and based on the artifacts recovered from the current survey, appears to represent a pot bust. Since the data is limited to pottery likely belonging to one vessel, the site is unlikely to yield significant research data. As a result, 31HK128 is recommended as not eligible for inclusion on the National Register of Historic Places.

31HK148

Site 31HK148 is located 2710 m north of Longstreet Road and 520 m east of Ray Road. The central UTM coordinates are N3890600 E670270. The site is situated on a ridge nose with intermittent streams to the north and south and Jumping Creek to the east. The closest water source is the intermittent stream to the south of the site which is located 120 m away. The elevation at the site is 91 m and it is 6,534 m^2 in size (Figure 45).

The site was originally identified by Loftfield (1979:G-73) who collected one reworked Savannah River projectile point, a Guilford projectile point base, two retouched flakes, and 56 flakes. No subsurface testing was performed and additional testing was recommended to determine National Register eligibility.

Vegetation at the site consists of moderate to sparse grass, except in the eastern portion of the site where there is heavy gullying and very little vegetation. A surface collection was done which yielded 52 metavolcanic interior flakes, 29 quartz interior flakes, one eroded Badin sherd, five small sherds, and two quartz raw material fragments. In addition a metavolcanic projectile point was collected with the tip missing. The blade is lanceolate in shape with a tapering haft and convex base. Measurements are: length — 63.49 mm (estimated); blade length — 50.73 mm (estimated); blade width — 29.08 mm; haft width — 18.04 mm; thickness — 8.70 mm. The projectile point does not fit any published type. As will be discussed later, three of these points were collected from Sicily drop zone. Unfortunately, none were whole and the other two points were found as isolated occurrences. Given the presence of Woodland sherds at 31HK148, the points may date to the Woodland Period. Loftfield (1979) illustrates no points similar to these, so their temporal placement can not be predicted based on the types of artifacts in his previous collections from Fort Bragg.

Fifteen shovel tests were placed in the vicinity of and within the site at 30 m intervals. In addition, five shovel tests were excavated at 10 m intervals. All were excavated to approximately 40 cm below surface and none of these tests yielded artifacts. A 50 cm square test unit was also placed at the site and excavated to 30 cm below surface. No artifacts were recovered. The site produced a total of 90 artifacts.

The soil profile consisted of 30 cm of reddish yellow sand (7.5YR6/8) (see Figure 45). The soil series is Lakeland sands which typically contain reddish yellow sands at a depth of 130 to 155 cm below surface (Hudson 1984). This suggests that there has been a great deal of erosion at the site.

Site 31HK148 dates to the Woodland Period. It has been badly damaged by erosion and by initial clear cutting of the drop zone. No subsurface remains were produced in shovel tests or the 50 cm test unit. Data sets are limited to surface pottery and lithics. As a result, the site is unlikely to be able to address significant research questions. 31HK148 is recommended as not eligible for inclusion on the National Register of Historic Places.

31HK154

Site 31HK154 is located 1380 m south of Manchester Road and 1000 m northeast of Ray Road. The central UTM coordinates are N3891140 E670580. The site is situated on a ridge nose approximately 250 m west of Jumping Creek. The elevation is 88 m and it is 896 m^2 in size (Figure 46).

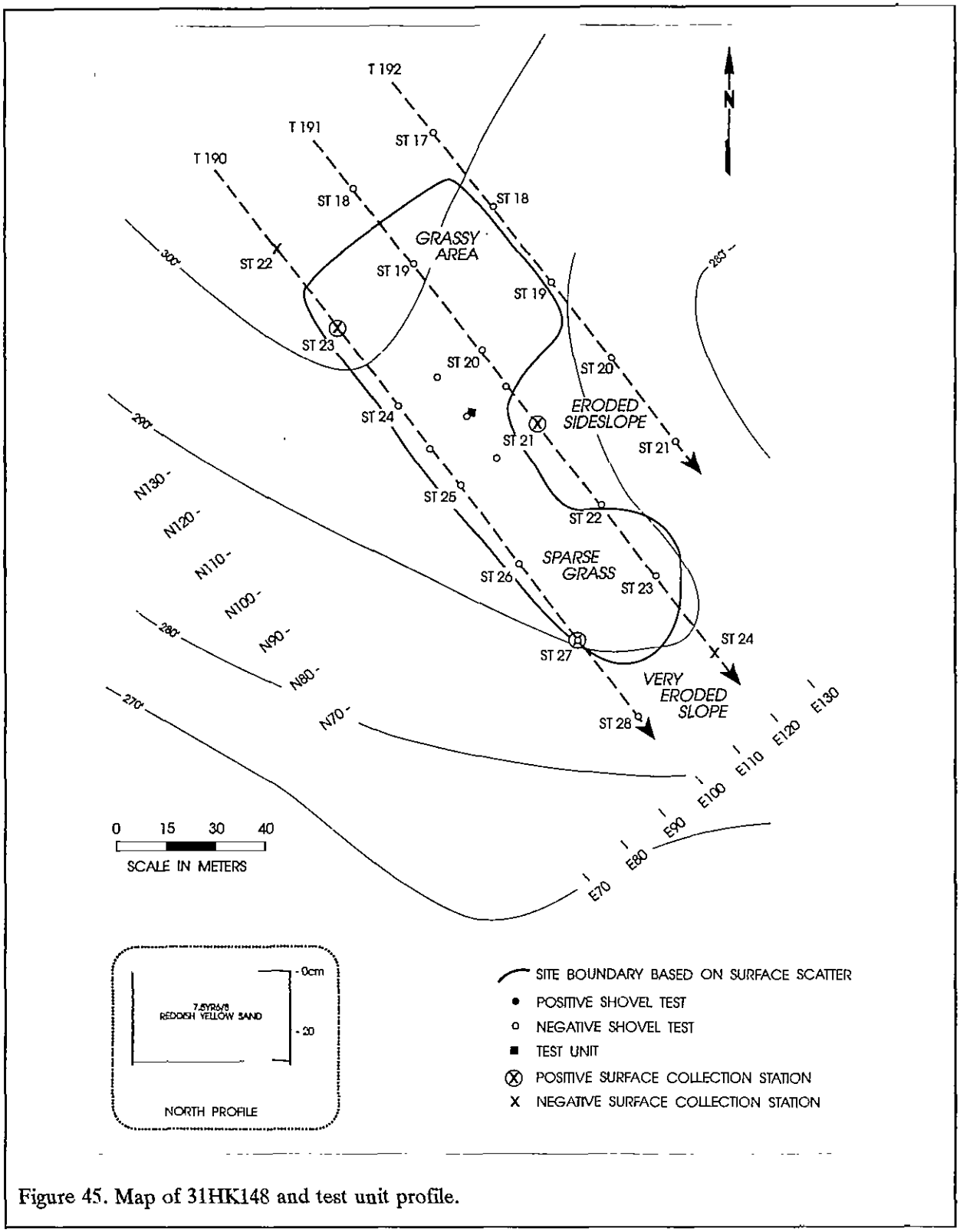

Figure 45. Map of 31HK148 and test unit profile.

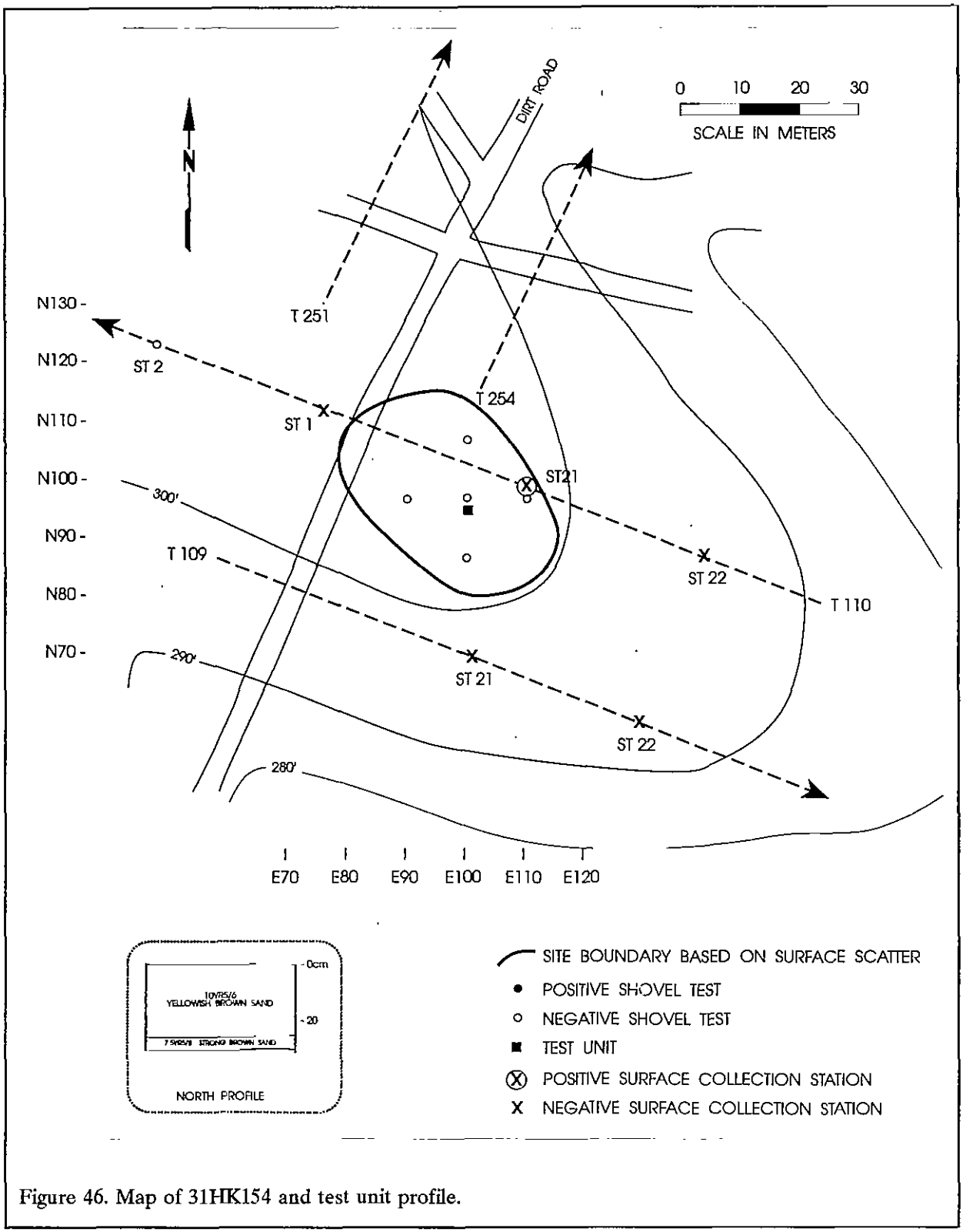

Figure 46. Map of 31HK154 and test unit profile.

The site was originally identified by Loftfield (1979:G-74) who surface collected one Stanly projectile point, one Savannah River projectile point, one Guilford projectile point, one blade, four projectile point bases, eight biface fragments, one end scraper, one utilized flake, 67 prehistoric sherds, and 146 flakes. No subsurface testing was done and additional testing was recommended.

Vegetation at the site consists of sparse grass providing good visibility. Collected from an area measuring 40 m northwest-southeast by 30 m northeast-southwest were 13 metavolcanic interior flakes, one metavolcanic biface fragment and four quartz interior flakes. One shovel test was placed in the center of the site with four additional tests placed in cardinal directions at 10 m intervals. All were excavated to approximately 35 cm below surface and none yielded artifacts. A 50 cm test unit was excavated at the site to a depth of 30 cm. No artifacts were encountered. Eighteen artifacts were collected from the site.

The soil profile consisted of 25 cm of yellowish brown sand (10YR5/6) overlying 5 cm of strong brown sand (7.5YR5/8) (see Figure 46). The soils are classified as Lakeland sands which typically have an Ap horizon of dark gray sand (10YR4/1). The absence of an Ap horizon at 31HK155 indicates that the site is eroded.

No diagnositic artifacts were recovered to provide temporal affiliation. Since the artifacts consisted primarily of debitage, the site probably functioned as a lithic work station. The site has been damaged by erosion, clear cutting, and road grading, and no subsurface artifacts were encountered. Therefore it is unlikely that the site can address significant research questions. As a result 31HK154 is recommended as not eligible for inclusion on the National Register of Historic Places.

31HK159

Site 31HK159 is located 960 m south of Manchester Road and 1330 m northeast of Ray Road. The central UTM coordinates are N3891560 E670770. The site is situated on a drainage sideslope with the nearest source of water being Jumping Creek located 150 m to the southeast. The elevation is 88 m and it is 796 m^2 in size (Figure 47).

The site was originally identified by Loftfield (1979:G-75) who collected one prehistoric sherd, one retouched flake, and 17 flakes. No subsurface testing was done and no additional work was recommended.

Vegetation at the site consisted of sparse grass, providing good surface visibility. Surface collected were 14 quartz interior flakes, two metavolcanic interior flakes, and one metavolcanic grinding stone. A shovel test was placed in the center of the site with four additional tests excavated at 10 m intervals in cardinal directions. All were excavated to 30 cm below surface and none yielded artifacts. A 50 cm unit was also excavated at the site which yielded two metavolcanic interior flakes between 10 and 20 cm below surface. Nineteen artifacts were collected from the site.

The soil profile consisted of 9 cm of dark gray sand (10YR4/1), over 5 cm of yellowish brown sand (10YR5/6) over 16 cm of strong brown (7.5YR5/8) sand (see Figure 47). Although the soil survey (Hudson 1984) classifies the soils in the site area as Candor sands, the profile obtained from the site is more consistent with Lakeland sands. Regardless, the presence of an Ap horizon (dark gray sand) suggests that the site has suffered little from erosion.

No diagnostic artifacts were recovered from the site. However, the presence of a grinding stone probably dates the site to either the Late Archaic or the Woodland Period. The site probably functioned as a limited activity site since it contains only debitage and the grinding stone. Although soil profiles at the site suggest that it has received little damage from erosion, some erosion has occurred in the southeastern portion of the site as evidenced by the presence of an erosional gully. Other damage resulted from the clear cutting of the drop zone. The site yielded few surface artifacts and no subsurface artifacts, therefore it is unlikely to be able to address significant research questions.

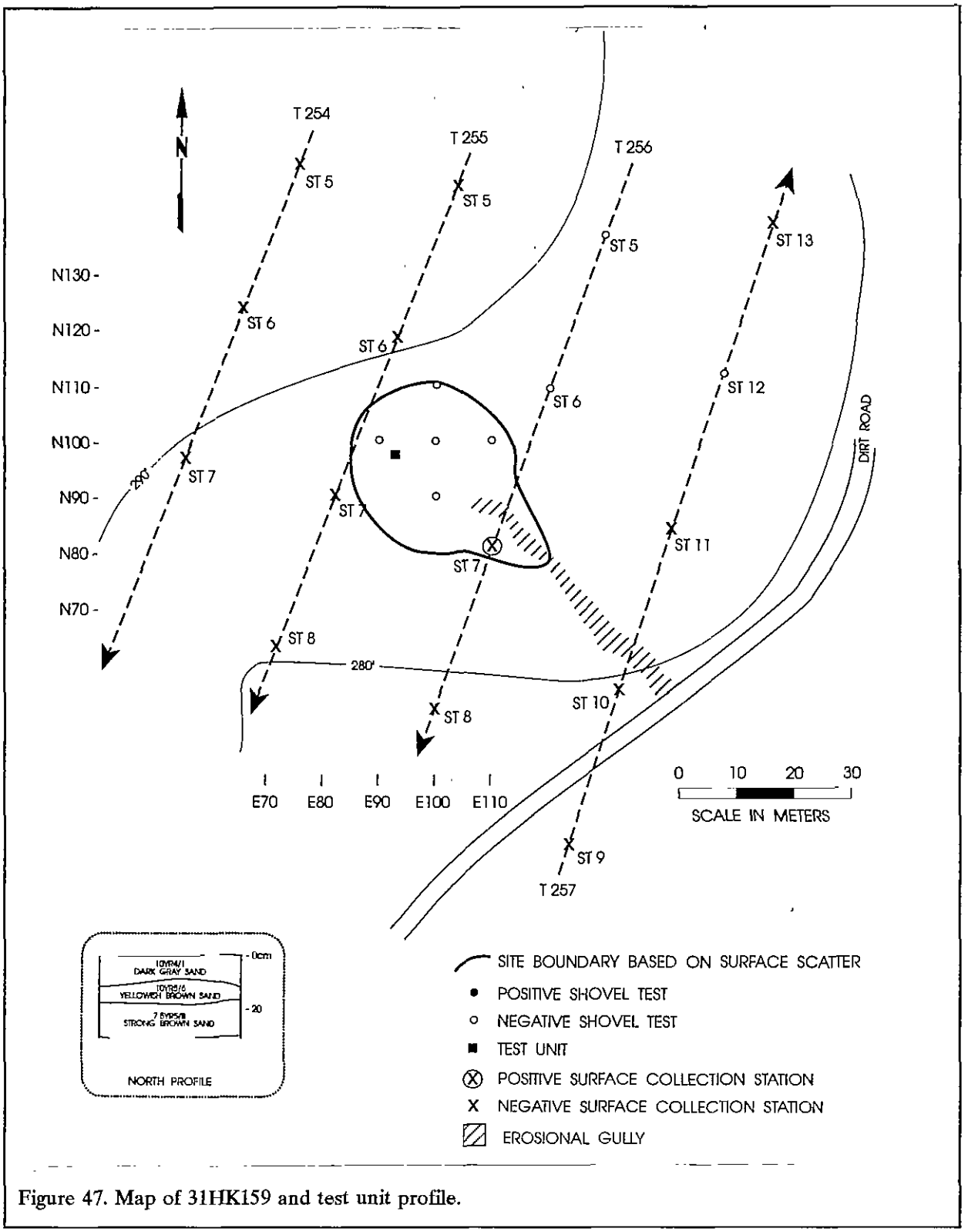

Figure 47. Map of 31HK159 and test unit profile.

As a result 31HK159 is recommended as not eligible for inclusion on the National Register of Historic Places.

31HK161

Site 31HK161 is located 680 m south of Manchester Road and 1460 m northeast of Ray Road. The central UTM coordinates are N3891800 E670630. The site is situated on a ridge nose overlooking an un-named stream located approximately 60 m to the north. The elevation is 82 m and it is 3600 m^2 in size (Figure 48).

The site was originally identified by Loftfield (1979:G-76) who collected one biface tool, one grinding stone, and six flakes. No subsurface testing was performed and no additional work was recommended.

Vegetation at the site consists of very sparse grass which provided excellent visibility. Collected from an area measuring 80 m east-west by 70 m north-south were 22 metavolcanic interior flakes, 13 quartz interior flakes, one broken quartz Halifax projectile point, 64 small sherds, and two Hanover Cord Marked sherds. The following measurements were taken from the Halifax point: length — 42.85 mm (estimated); blade length — 32.90 mm (estimated); blade width — 17.25 mm; haft width — 11.74 mm; thickness — 10.35 mm. One shovel test was placed in the center of the site which yielded one metavolcanic interior flake. Eight additional tests were excavated at 10 m intervals in cardinal directions. All were excavated to about 45 cm below surface and none yielded artifactual remains. A 50 cm test unit was also excavated at the site to 30 cm below surface. No artifacts were observed. The site produced a total of 103 artifacts.

The soil profile consists of 12 cm of dark grayish brown sand (10YR4/2) overlying 18 cm of yellowish brown sand (10YR5/4) (see Figure 48). The soils are classified as Candor sands which typically produce a similar profile (Hudson 1984). This suggests that the site is not badly damaged by erosion.

Artifacts at 31HK161 suggest a Middle Archaic to Middle Woodland occupation. The site probably functioned as a limited activity site. The site has been damaged by road grading as well as the initial clear cutting of the drop zone. However, erosion does not seem to have significantly damaged the site. Since the site yielded very few subsurface remains, it is doubtful that it contains subsurface features. Therefore, it is unlikely that it can address significant research questions. Site 31HK161 is recommended as not eligible for inclusion on the National Register of Historic Places.

31HK162

Site 31HK162 is located 800 m south of Manchester Road and 1330 m northeast of Ray Road. The site is situated on a drainage sideslope with the nearest source of water consisting of an un-named stream located approximately 40 m to the northwest. The elevation is 82 m and it is 948 m^2 in size (Figure 49).

The site was originally identified by Loftfield (1979:G-76) who collected two Savannah River projectile points, five biface fragments, one scraper, one core, 65 prehistoric sherds and 62 flakes. No subsurface testing was done, however he recommended additional work to determine National Register eligibility.

Vegetation at the site consists of sparse grass providing good surface visibility. Collected from an area measuring 50 m north-south by 25 m east-west were two prehistoric sherds, 4 quartz interior flakes, 16 metavolcanic interior flakes, and two metavolcanic secondary flakes. A shovel test was placed in the area of densest remains with four additional tests placed at 10 m intervals in cardinal directions. All tests were excavated to 40 cm below surface and none yielded artifactual remains. A 50 cm test unit was also placed at the site and excavated at 30 cm below surface. No remains were encountered. The site produced a total of 24 artifacts.

The soil profile consisted of 30 cm of yellowish brown sand (10YR5/4) (see Figure 49). The soils at the site are classified as Candor sands

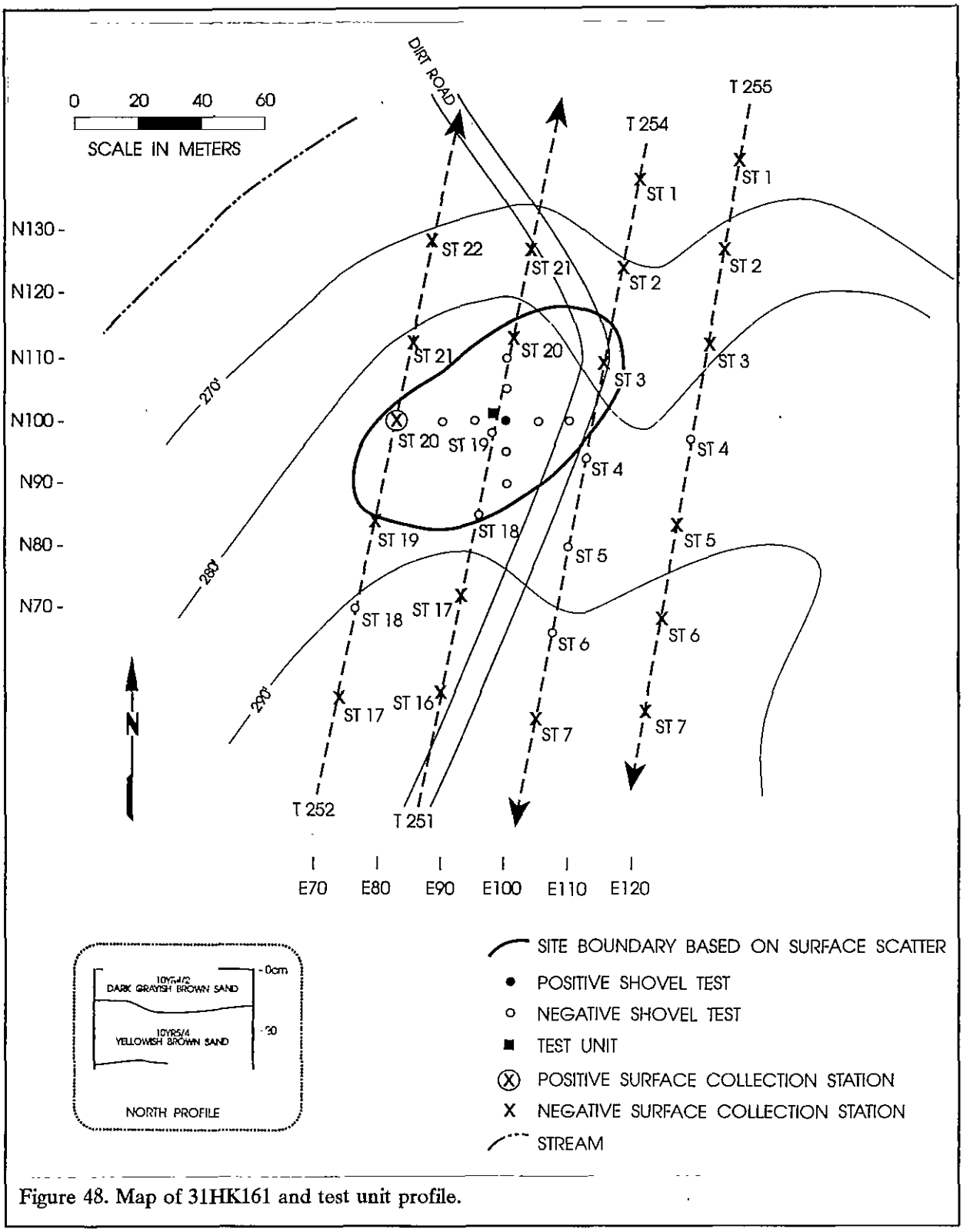

Figure 48. Map of 31HK161 and test unit profile.

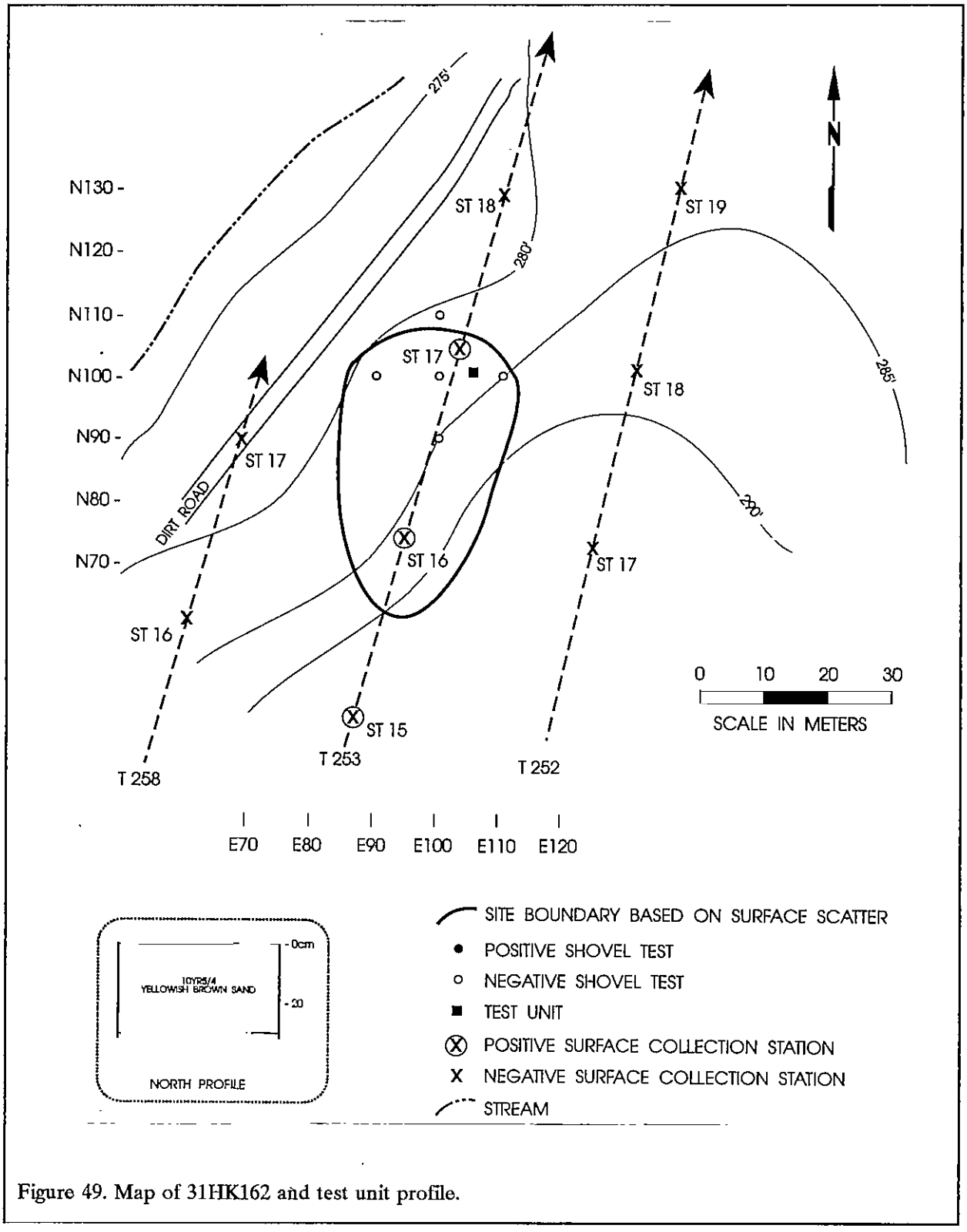

Figure 49. Map of 31HK162 and test unit profile.

which typically have an Ap horizon of dark grayish brown sand (10YR4/2) overlying this yellowish brown sand (Hudson 1984). The absence of the Ap horizon indicates that the site has been damaged by erosion.

No diagnostic artifacts were recovered from the site to provide temporal placement. Based on artifacts recovered during the current survey, the site probably functioned as a lithic work station. The site has been damaged by erosion and the initial clear cutting of the drop zone, and no subsurface artifacts were recovered. Therefore, it is unlikely that the site can address significant research questions. As a result, 31HK162 is recommended as not eligible for inclusion on the National Register of Historic Places.

31HK166

Site 31HK166 is located 1450 m south of Manchester Road and 620 m east of Ray Road. The central UTM coordinates are N3891200 E670080. The site is situated on a hill top and the nearest source of water is located 190 m southeast of the site. The elevation is 97 m and it is 492 m^2 in size (Figure 50).

The site was originally identified by Loftfield (1979:G-77) who collected 18 flakes. No subsurface testing was performed and no additional work was recommended.

The site was located in an exposed area providing excellent surface visibility. Collected from the site were 13 quartz interior flakes and 26 metavolcanic interior flakes. Most of these flakes were collected from two concentrations with a sparse scatter in between. This collection covered an area measuring 38 m east-west by 20 m north-south. One centrally placed shovel test was placed at the site with four additional tests excavated in cardinal directions in 10 m intervals. All were excavated to approximately 40 cm below surface and no artifacts were recovered. A 50 cm square test unit was excavated in the area of one of the concentrations to a depth of 40 cm below surface. No artifacts were recovered from the test, although 39 artifacts were collected from the site.

The soil profile consisted of strong brown sand (7.5YR5/8) to a depth of 40 cm (see Figure 50). The soils are classified as Lakeland sands which typically do not contain these strong brown sands until depths ranging from 37 to 110 cm below surface (Hudson 1984). This indicates that the site has suffered from a great deal of deflation.

No diagnostic artifacts were recovered at 31HK166 to provide temporal information. The site probably functioned as a lithic work station, given the presence of only lithic debitage. Since the site contains limited data sets, has been damaged by the initial clear cutting of the drop zone and subsequent deflation which resulted in a lack of subsurface artifacts, 31HK166 is recommended as not eligible for inclusion on the National Register of Historic Places.

31HK170

Site 31HK170 is located 680 m south of Manchester Road and 1060 m northeast of Ray Road. The central UTM coordinates are N3891910 E670320. The site is situated on a slight ridge nose in an area of upland flats. The nearest source of water is an intermittent stream located 100 m to the south of the site. The elevation is 91 m and it is 764 m^2 in size (Figure 51).

The site was originally identified by Loftfield (1979:G-78) who collected one possible Morrow Mountain I projectile point, one knife, one end scraper, one biface fragment, and 56 flakes. No subsurface testing was performed and no additional testing was recommended.

Vegetation at the site consisted of very sparse grass which provided excellent visibility. Surface collected were 16 interior metavolcanic flakes, 28 quartz interior flakes, and one quartz biface tip from an area measuring 40 m north-south by 25 m east-west. One centrally located shovel test was excavated with four additional tests excavated in cardinal directions at 10 m intervals. All were excavated to 30 cm below surface and no artifacts were encountered. A 50 cm square test unit was also excavated at the site to a depth of 30 cm below surface which yielded no artifacts. The site produced a total of 45 artifacts.

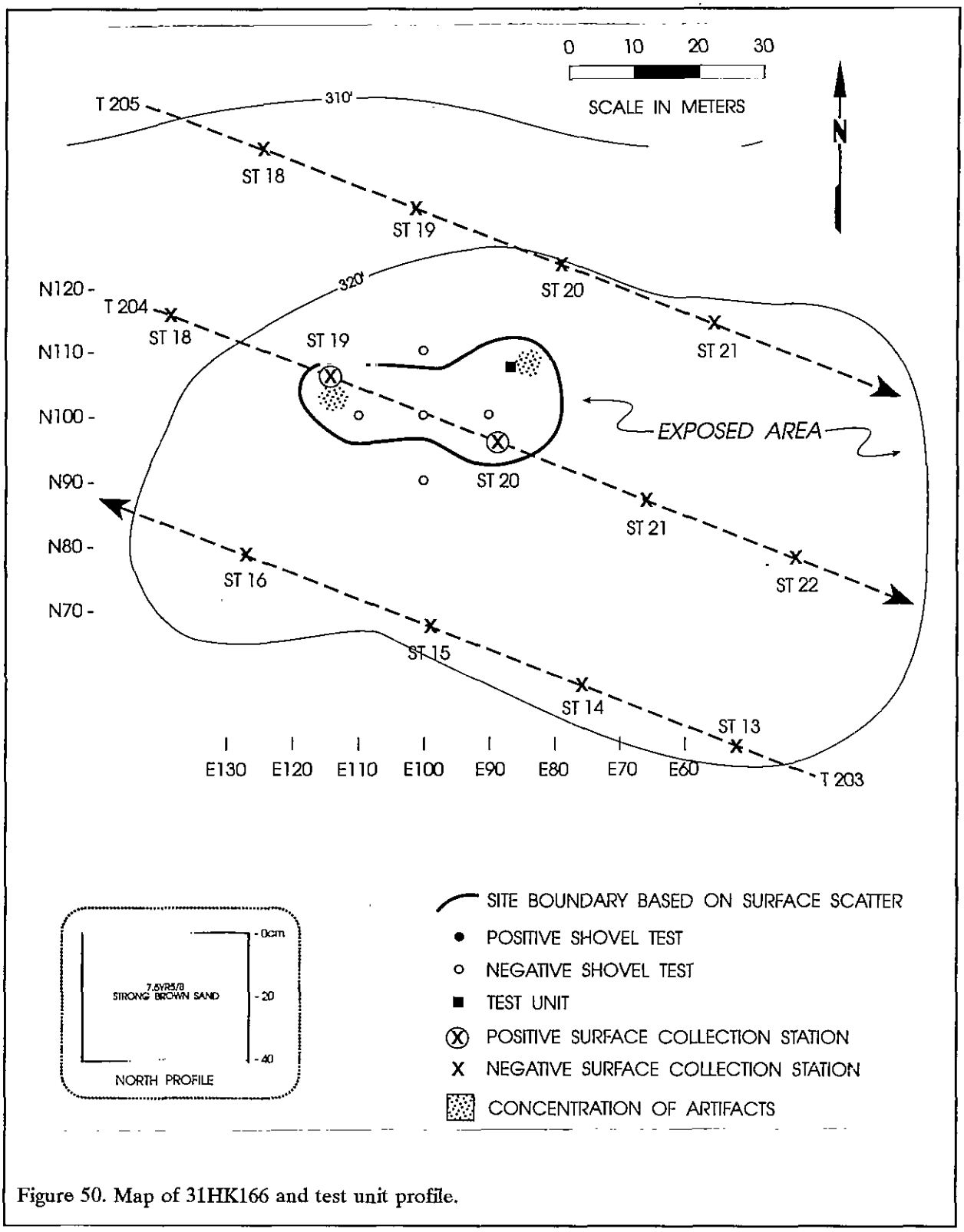

Figure 50. Map of 31HK166 and test unit profile.

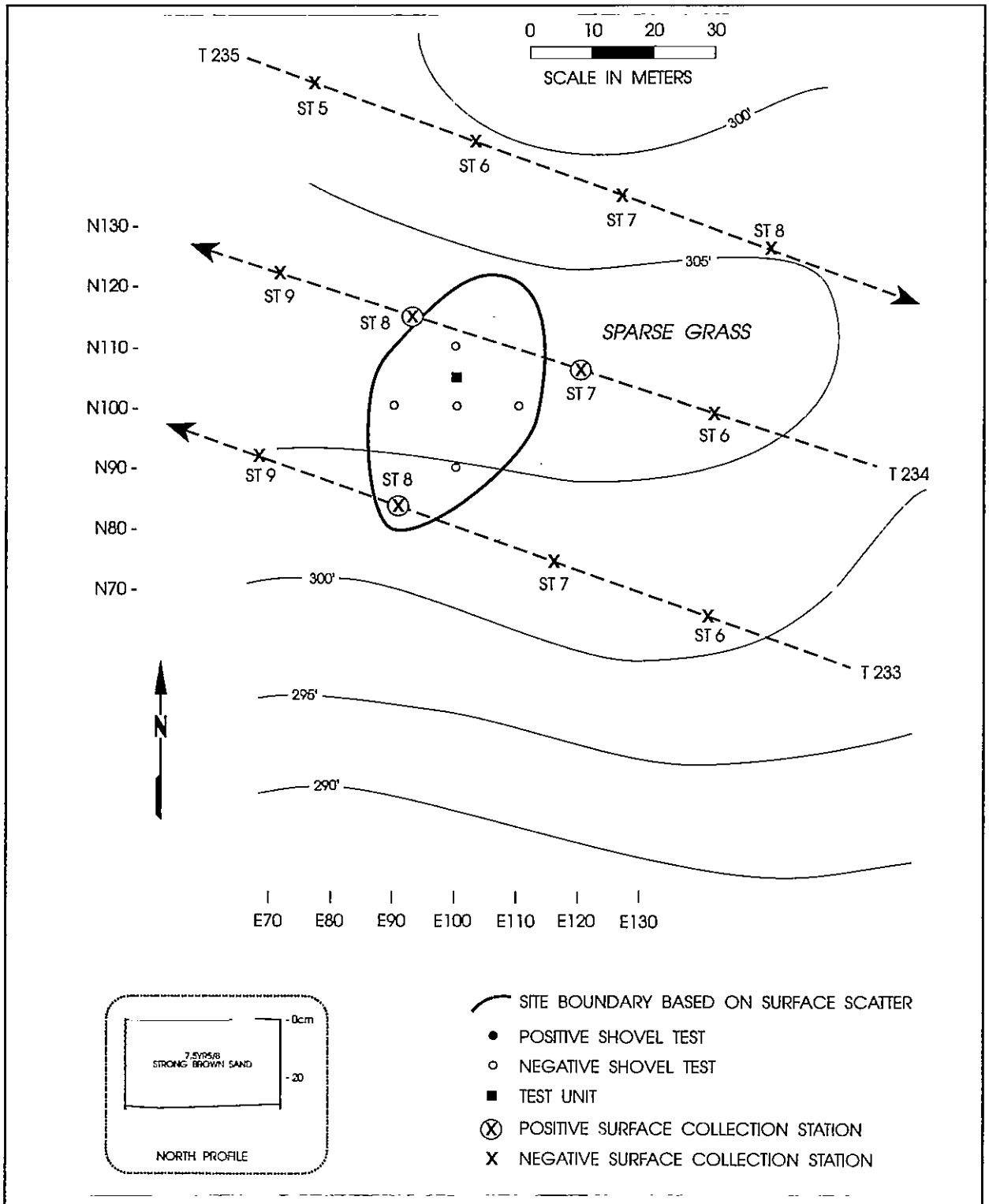

Figure 51. Map of 31HK170 and test unit profile.

The soil profile consisted of strong brown sand (7.5YR5/8) to a depth of 30 cm (see Figure 51). The soils are classified as Lakeland sands which typically do not contain strong brown sands until a depth of 15 to 44 cm below surface (Hudson 1984). This indicates that the site is badly deflated.

No diagnostic artifacts were recovered from the site to provide temporal placement. The artifacts recovered suggests that the site functioned as a lithic work station. Since the site contains no subsurface remains and has been damaged by clear cutting and deflation, 31HK170 is recommended as not eligible for inclusion on the National Register of Historic Places.

31HK173

Site 31HK173 is located 640 m south of Manchester Road and 1260 m northeast of Ray Road. The central UTM coordinates are N3891970 E670560. The site is located adjacent to a drainage sideslope overlooking an intermittent stream 150 m to the southeast. The elevation is 91 m and it is 4,632 m^2 in size (Figure 52).

The site was originally identified by Loftfield (1979:G-79) who collected one Savannah River projectile point, three scrapers, one biface, one biface fragment, one core and 81 flakes. No subsurface testing was performed, but additional work was recommended to determine National Register eligibility.

The majority of the site area was completely exposed except for sparse grass in the center of the site and on the fringes. This provided excellent surface visibility and a collection was made of an area measuring 85 m northeast-southwest and 40 m southeast-northwest. This collection consisted of 66 quartz interior flakes, one bifacially worked quartz flake fragment, 21 metavolcanic secondary flakes, one metavolcanic biface fragment, and one metavolcanic scraper. Measurement on the scraper include: length — 31.94 mm; width — 52.16 mm; thickness — 15.31 mm; angle — 59.75°; and weight — 23.01 g.

Two shovel tests were placed in different exposed areas with four additional tests placed at 10 m intervals in cardinal directions in each area for a total of 10 shovel tests. All were excavated to between 40 and 50 cm below surface. A 50 cm square test unit was placed in the sparsely grassed area near the center of the site and excavated to a depth of 48 cm below surface. No artifacts were encountered although a large quantity of small water worn pebbles were observed. The site produced a total of 90 artifacts.

The soil profile consisted of 24 cm of brownish yellow sand (10YR6/6) overlying yellow sand (10YR7/6) mottled with white sand (see Figure 52). The soil series is Lakeland sands which typically do not contain soils of this color until 130 to 155 cm below surface (Hudson 1984). This indicates that there has been an incredible amount of deflation.

No diagnostic artifacts were encountered to provide temporal placement. The site probably functioned as either a lithic work station or a limited activity site. Since the site has been severely damaged by clear cutting, road grading, and deflation, and since no subsurface artifacts were encountered, site 31HK173 is recommended as not eligible for inclusion on the National Register of Historic Places.

Newly Identified Archaeological Sites

31HK434

Site 31HK434 is located approximately 1540 m north of Longstreet Road and 100 m west of Ray Road. Topography at the site consists of a slight rise above the immediate surrounding landscape. The closest source of water is a springhead located 540 m to the southeast. The site is at an elevation of 112 m and it is 2,984 m^2 in size (Figure 53).

Vegetation at the site consisted of very sparse grass and surface visibility was excellent. A surface collection was obtained at the site which consisted of 40 quartz interior flakes, one quartz secondary flake, one quartz cobble, five metavolcanic interior flakes, one metavolcanic

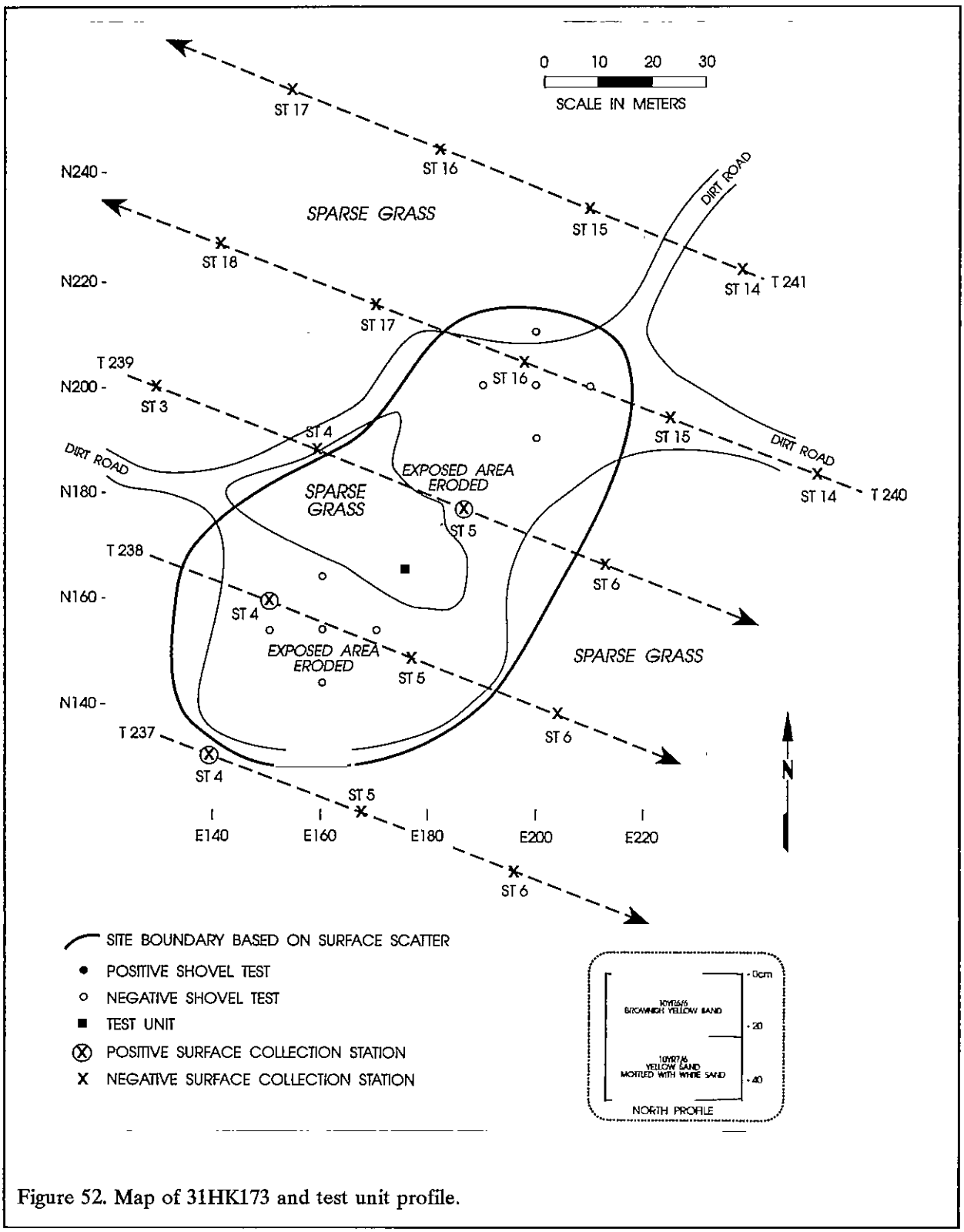

Figure 52. Map of 31HK173 and test unit profile.

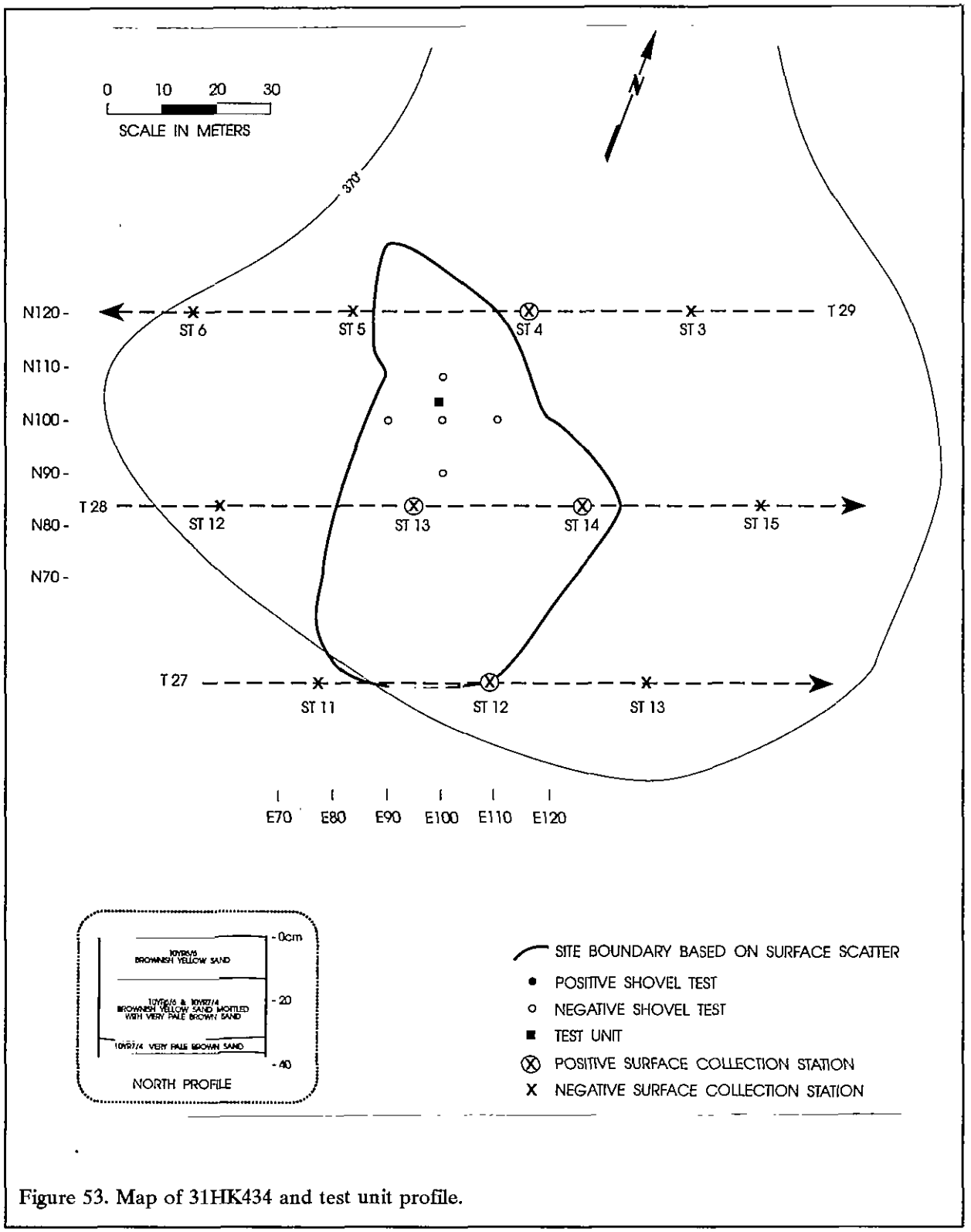

Figure 53. Map of 31HK434 and test unit profile.

Thelma projectile point, and one metavolcanic Morrow Mountain I projectile point. Measurements obtained from the Thelma point are: length — 32.83 mm; blade length — 27.75 mm; blade width — 21.41 mm; haft width — 6.63 mm; thickness — 6.89mm. Measurements obtained from the Morrow Mountain I projectile point are: length — 33.23 mm; blade length — 26.81 mm; blade width — 27.66 mm; haft width — 8.87 mm; and thickness — 5.66 mm. These artifacts were collected from a 50 m east-west by 80 m north-south area. A shovel test was placed in the area of densest surface remains with four additional tests excavated at 10 m intervals in cardinal directions. All were excavated to a depth of 30 to 40 cm and none yielded subsurface remains. A 50 cm square test unit was also placed at the site and excavated to a depth of 36 cm below surface. No artifacts were encountered. The site produced a total of 49 artifacts.

The soil profile in the 50 cm unit consisted of 14 cm of brown yellow sand (10YR6/6) overlying mottled brown yellow sand and very pale brown sand (10YR7/4), overlying very pale brown sand (see Figure 53). The soils at the site are classified as Lakeland sands. According to the county soil survey (Hudson 1984:82) soils of this color in this series are typically found at depths ranging from 105 to 130 cm below surface. This indicates that the site has experienced an incredible amount of erosion. The boundaries of the site consist of the 50 m by 80 m area of surface remains.

Artifacts from the site indicate that the site dates to the Middle Archaic and Late Woodland periods and probably functioned as a limited activity site. Given the great deal of erosion and the lack of subsurface artifactual remains, it is unlikely that the site can address significant research questions regarding the Middle Archaic or Late Woodland periods. As a result, 31HK434 is recommended as not eligible for inclusion on the National Register of Historic Places.

31HK435

Site 31HK435 is located 1800 m north of Longstreet Road and 154 m west of Ray Road. The central UTM coordinates are N3889840 E668900. The topography of the site is relatively level and the site is situated on a small rise. A springhead is located adjacent to the site, approximately 180 m to the northwest. The elevation at the site is 97 m and it is 7,584 m^2 (Figure 54).

Table 11.
Subsurface Artifacts from 31HK435

	——interior flakes——	
Provenience	Quartz	Metavolcanic
TU 1, 10-20 cm	6	
TU 1, 20-30 cm	1	
TU 1, 30-40 cm		2
N480E420	1	1
N500E420	3	
N500E480		1
N500E520	1	
N520E480		1
N520E500	1	
N520E520	1	
Total	16	5

Vegetation at the site consists of very sparse grass with a moderate amount of small scrub oak. The site is intersected by several dirt roads which have damaged some portions of the site. Surface visibility was good throughout the site area and a collection was made from an area measuring 90 m east-west and 80 m north-south. These artifacts include 85 quartz interior flakes, one snapped smoky quartz preform, 47 metavolcanic interior flakes, one bifacially worked metavolcanic artifact, seven small unidentifiable prehistoric sherds, and one Hanover Fabric Impressed sherd. The metavolcanic biface appeared to have been abandoned during reduction as apparently a large hump in one side could not be removed.

Thirty-eight shovel tests were placed at the site in a grid pattern at 20 m intervals. Of those 38 shovel tests seven yielded subsurface remains. All of these remains were interior flakes (Table 11). Shovel tests at the site were excavated to depth ranging from 80 to 100 cm below surface. Artifacts were typically recovered in the first 40 cm. A 50 cm square test unit was also excavated at

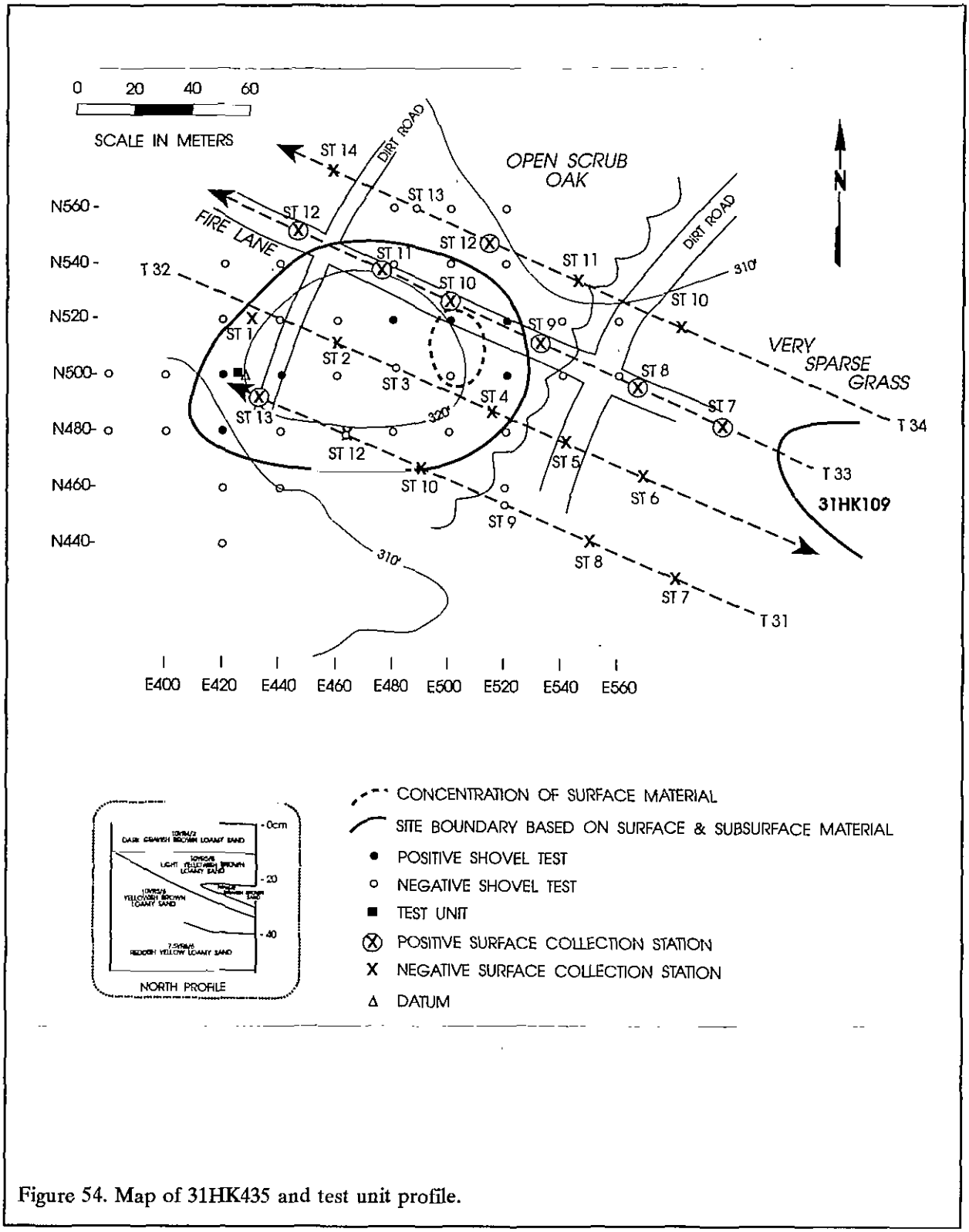

Figure 54. Map of 31HK435 and test unit profile.

the site in the vicinity of the densest subsurface remains. Nine interior flakes were recovered to a depth of 40 cm (Table 11) with a total depth of 50 cm below surface. The site produced a total of 161 artifacts. Based on surface remains and shovel testing Site 31HK435 is 100 m east-west by 80 m north-south.

The soil profile of the unit consisted of 12 cm of dark grayish brown loamy sand (10YR4/2) overlying 20 cm of light yellowish brown loamy sand (10YR5/8), over 6 cm of yellowish brown loamy sand (10YR5/6), over 15 cm of reddish yellow (7.5YR6/6) loamy sand for a total depth of 56 cm below surface (see Figure 54). The soil is classified as Blaney loamy sand which typically has 10 cm of A horizon (Hudson 1984). The presence of an A horizon at the site suggests that it has suffered relatively little from the effects of erosion.

Artifacts from 31HK435 indicate that the site dates to the Hanover phase and may have been some type of limited activity site. The artifacts were confined to pottery, lithic debitage, and bifaces. No ground stone tools, animal bone, burins, etc. were present to suggest longer term occupation. However, given the small sample of materials retrieved additional excavations may provide better evidence for the types of activities which may have occurred at the site and the length of occupation. Additional testing is need to better understand the types of research questions that the site might answer. The site is fairly deeply deposited and may contain other components. Although it has been damaged by road grading and by the initial clear cutting of the drop zone, the presence of an A horizon and subsurface artifacts suggest that the site may have the potential to address significant research issues. These issues might include intra-site spatial patterning, Middle Woodland diet (including types of cultigens used at that time), and architecture. As a result, Site 31HK435 is recommended as potentially eligible for inclusion on the National Register of Historic Places.

31HK436

Site 31HK436 is located 2100 m north of Longstreet Road and 60 m west of Ray Road. The central UTM coordinates are N3890140 E669470. The site is located on a relatively level area of an upland slope with the closest source of water being a springhead located approximately 600 m to the east. The elevation at the site is 109 m and it is 3936 m^2 in size (Figure 55).

Vegetation at the site consists of very sparse grass making surface visibility excellent. A surface collection was made which consisted of 58 quartz interior flakes, one quartz secondary flake, one broken quartz biface, one bifacially worked quartz tool, 18 metavolcanic interior flakes, one metavolcanic biface tip, two pieces of metavolcanic raw material, one chert interior flake, and three fire cracked rocks. These artifacts were collected from an area measuring 80 m east-west by 60 m north-south. A shovel test was placed in the densest area of remains with four additional tests excavated in cardinal directions at 10 m intervals. All tests were excavated to a depth of about 35 cm with none producing subsurface remains. A 50 cm square unit was placed near the center of the site and excavated to a depth of 26 cm below surface. No artifacts were recovered from the unit, although 86 artifacts were collected from the site.

The soil profile consisted of 15 cm of strong brown sand (7.5YR5/8) overlying 11 cm of brownish yellow sand (10YR6/6) (see Figure 55). The soils at the site are classified as Lakeland sands and typically, the strong brown sands are not found until depths of 37 cm or greater (Hudson 1984). This suggests that the site has suffered a great deal from erosion.

No diagnostic artifacts were recovered from the site to provide information on temporal placement. Site 31HK436 probably functioned as a lithic workshop. Since no subsurface remains were recovered and soil profiles indicate that the site is badly eroded, Site 31HK436 is recommended as not eligible for inclusion on the National Register of Historic Places.

31HK437

Site 31HK437 is located about 1980 m north of Longstreet Road and 200 m east of Ray Road. The central UTM coordinates are N3890000

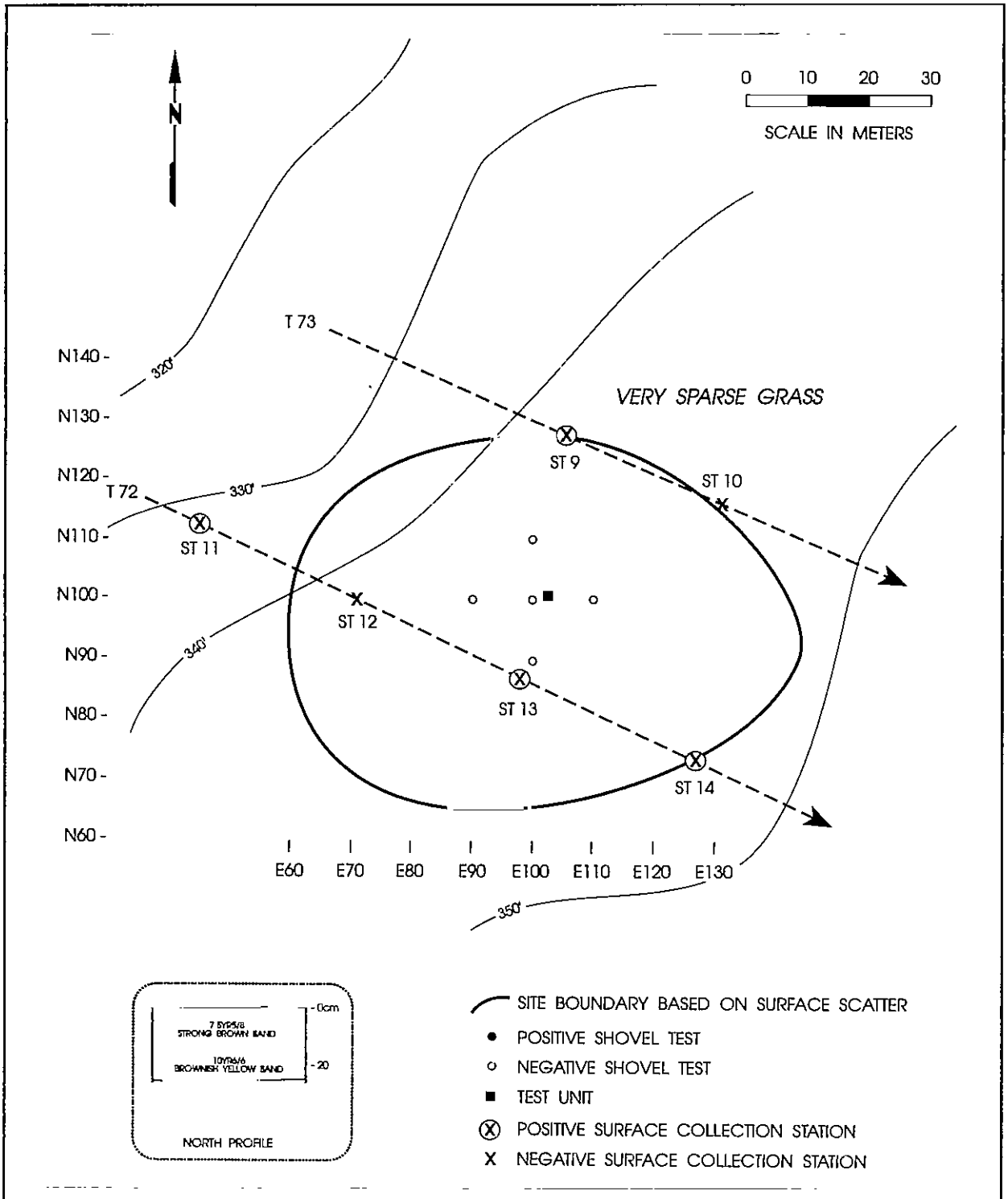

Figure 55. Map of 31HK436 and test unit profile.

E669660. The site is located on a gentle upland slope with the nearest source of water located 300 m to the southeast. The elevation at the site is 103 m and it is 880 m^2 in size (Figure 56).

The site area is almost devoid of vegetation and visibility was excellent. A surface collection was obtained which consists of 36 quartz interior flakes, three metavolcanic interior flakes, and one quartz scraper. The following measurements were obtained from the scraper: length — 46.62 mm; width — 43.14 mm; thickness — 11.04 mm; weight — 25.48 g; and edge angle — 44.5°. These artifacts were collected from an area measuring 36 m east-west by 32 m north-south.

A shovel test was excavated in the area of densest surface remains with four additional tests excavated at 10 m intervals in cardinal directions. All were excavated to a depth of about 35 cm below surface and none yielded artifacts. A 50 cm square unit was also placed at the site and excavated to a depth of 40 cm below surface. No remains were encountered. The site produced a total of 39 artifacts.

The soil profile consisted of brownish yellow sand (10YR6/6) with some strong brown (7.5YR6/8) wavy lines suggesting water washing (see Figure 57). These soils and the associated artifacts may have been washed down from upslope. Soils are classified as Lakeland sands (Hudson 1984).

No diagnostic artifacts were recovered from 31HK437 and the presence of a scraper along with the debitage suggests that site activities were limited. Soils at the site suggest that it may have been washed down from upslope and are out of their original context. No subsurface remains were encountered. Due to these factors, site 31HK437 is unlikely to address significant research questions and is recommended as not eligible for inclusion on the National Register of Historic Places.

31HK438

Site 31HK438 is located 2210 m north of Longstreet Road and 380 m east of Ray Road. The central UTM coordinates are N3890200 E669970. The site is located on an upland slope and the nearest source of water is an intermittent stream located 300 m to the southeast. The elevation at the site is 102 m and it is 968 m^2 in size (Figure 57).

Vegetation at the site consists of very sparse and spotty grass as the area of the site is badly eroded with occasional gullies. Visibility was excellent and a collection was made in an area measuring 44 m north-south by 32 m east-west. The bulk of the surface artifacts were recovered in the northern half of the site area. These artifacts included 46 metavolcanic interior flakes, three quartz interior flakes, two fire cracked rocks, one unidentifiable prehistoric rim sherd, and one Savannah River Stemmed projectile point base. Available measurements for the projectile point are: blade width — 38.99 mm, haft width — 24.00 mm, and thickness — 11.44 mm.

A central shovel test was excavated at the site which yielded no artifacts. Four additional shovel tests were excavated in cardinal directions at 10 m intervals. All tests were excavated to 40 cm below surface. None of these produced artifacts. A 50 cm square unit was excavated at the site to a depth of 30 cm below surface. No artifacts were recovered from the unit, although 50 artifacts were recovered from the site.

The soil profile consisted of yellow sand (10YR7/6) to the base of the unit (see Figure 57). Soils are classified as Lakeland sands and typically yellow sand is found at a depth of 155 to 205 cm (Hudson 1984). This suggests that the site is very badly eroded.

The site dates to the Late Archaic/Early Woodland Period and probably functioned as a limited activity site since it contained only lithics and pottery. Site 31HK438 is badly eroded and contained no subsurface remains. It is unlikely that the site can address significant research questions. As a result, site 31HK438 is recommended as not eligible for inclusion on the National Register of Historic Places.

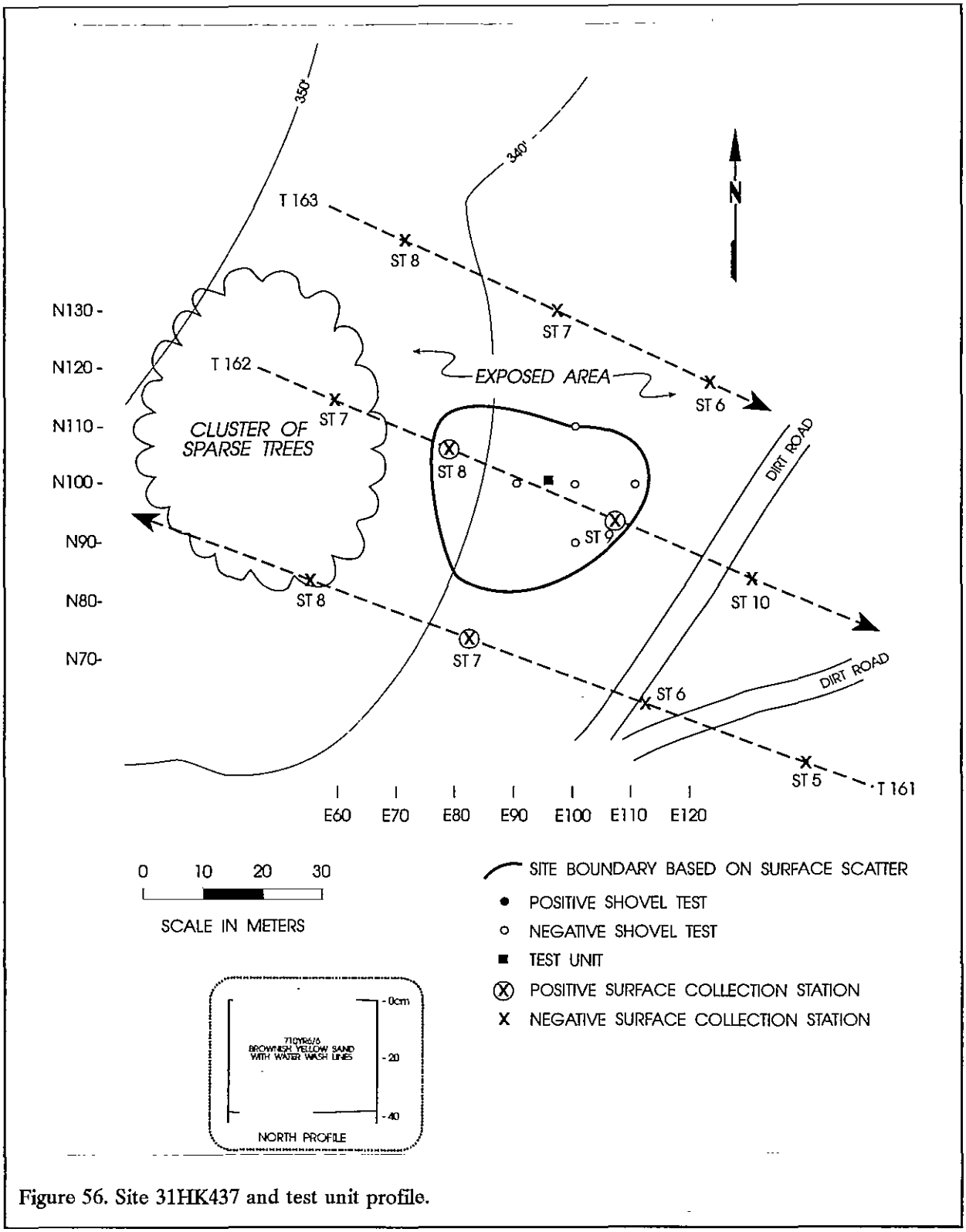

Figure 56. Site 31HK437 and test unit profile.

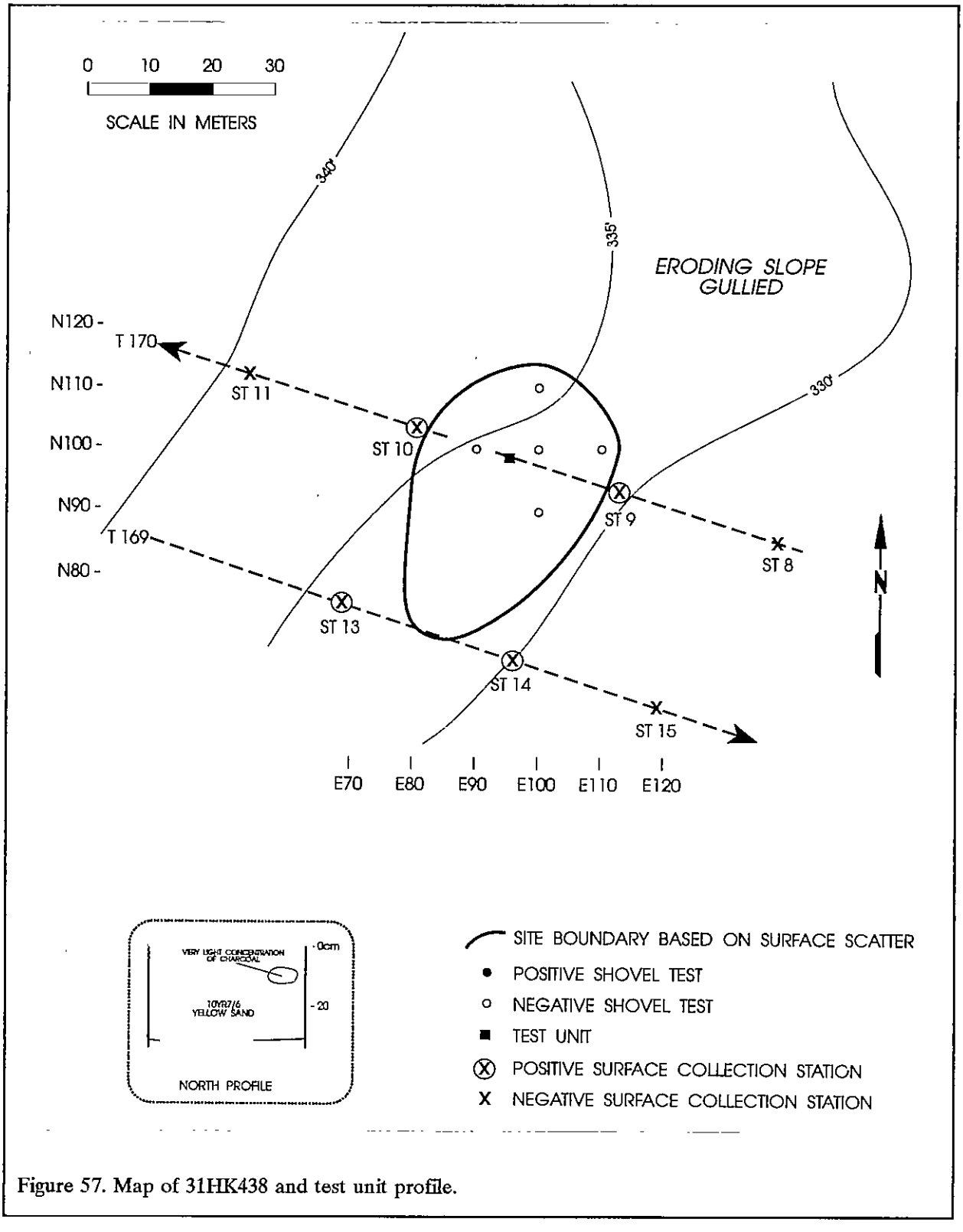

Figure 57. Map of 31HK438 and test unit profile.

31HK440

Site 31HK440 is located 2280 m north of Longstreet Road and 480 m east of Ray Road. The central UTM coordinates are N3890230 E670060. The site is situated on a gentle upland slope with the nearest source of water being an intermittent stream located 270 m to the south. The elevation at the site is 97 m and it is 396 m^2 in size (Figure 58).

Vegetation at the site consists of sparse grass providing excellent visibility. A surface collection was made from an area measuring 22 m east-west by 25 m north-south. This collection consisted of 22 metavolcanic interior flakes, nine quartz interior flakes, and one quartz biface fragment. A central shovel test was excavated at the site with four additional tests excavated in cardinal directions at 10 m intervals. All tests were excavated to a depth of 30 cm below surface and none produced artifacts. A 50 cm square unit was also placed at the site and was excavated to 30 cm below surface. No remains were encountered. Thirty-two artifacts were collected from the site.

The soil profile consisted of strong brown sand (7.5YR5/8) the entire depth of the unit (see Figure 58). The soils are classified as Lakeland sands and strong brown sands are typically encountered at 37 or more cm below surface (Hudson 1984). This indicates that the site is badly eroded.

No diagnostic artifacts were encountered and the site was probably used as a lithic work station. Site 31HK440 has been damaged by erosion and by clear cutting, contained no subsurface remains, and the data sets are limited to lithic artifacts. It is unlikely that the site can address significant research questions. As a result, 31HK440 is recommended as not eligible for inclusion on the National Register of Historic Places.

31HK441

Site 31HK441 is located 2800 m north of Longstreet Road and 240 m east of Ray Road. The central UTM coordinates are N3890800 E669840. The site is situated in upland flats and the nearest source of water is an intermittent stream located 270 m to the south. The elevation at the site is 97 m and it is 852 m^2 in size (Figure 59).

There is virtually no vegetation at the site, however the site area is ringed with grass covered sand dunes. Surface visibility was excellent and a collection was made in an area measuring 50 m east-west by 20 m north-south. This collection consisted of 133 quartz interior flakes, one quartz primary flake, 28 metavolcanic interior flakes, four fire cracked rocks, and one metavolcanic biface. A shovel test was placed in the densest portion of the site and four additional tests were excavated in cardinal directions at 10 m intervals. All tests were excavated to 35 cm below surface and none yielded artifactual remains. A 50 cm test unit was also placed at the site and excavated to 30 cm below surface. No remains were encountered, although 167 artifacts were collected from the site.

The profile in the test unit consisted of 30 cm of reddish yellow sand (7.5YR6/8) (see Figure 59). The soils are classified as Lakeland sands which typically have this reddish yellow sand between 110 to 130 cm (Hudson 1984). This indicates that the site is badly deflated. In addition, the presence of sand dunes in the site area suggests a great deal of lateral soil movement.

No diagnostic artifacts were recovered to the place the site temporally. The site most likely functioned as a lithic work station since the data sets consisted only of debitage. Site 31HK441 has been damaged by deflation, clear cutting, and vehicle traffic. It is unlikely that the site can address significant research questions and is recommended as not eligible for inclusion on the National Register of Historic Places.

31HK442

Site 31HK442 is located 2780 m north of Longstreet Road and 300 m east of Ray Road. The central UTM coordinates are N3809040 E669900. The site is located on a small rise in an upland flats area with occasional sand dunes and the nearest source of water is located 320 m to the southeast. The elevation at the site is 103 m and it

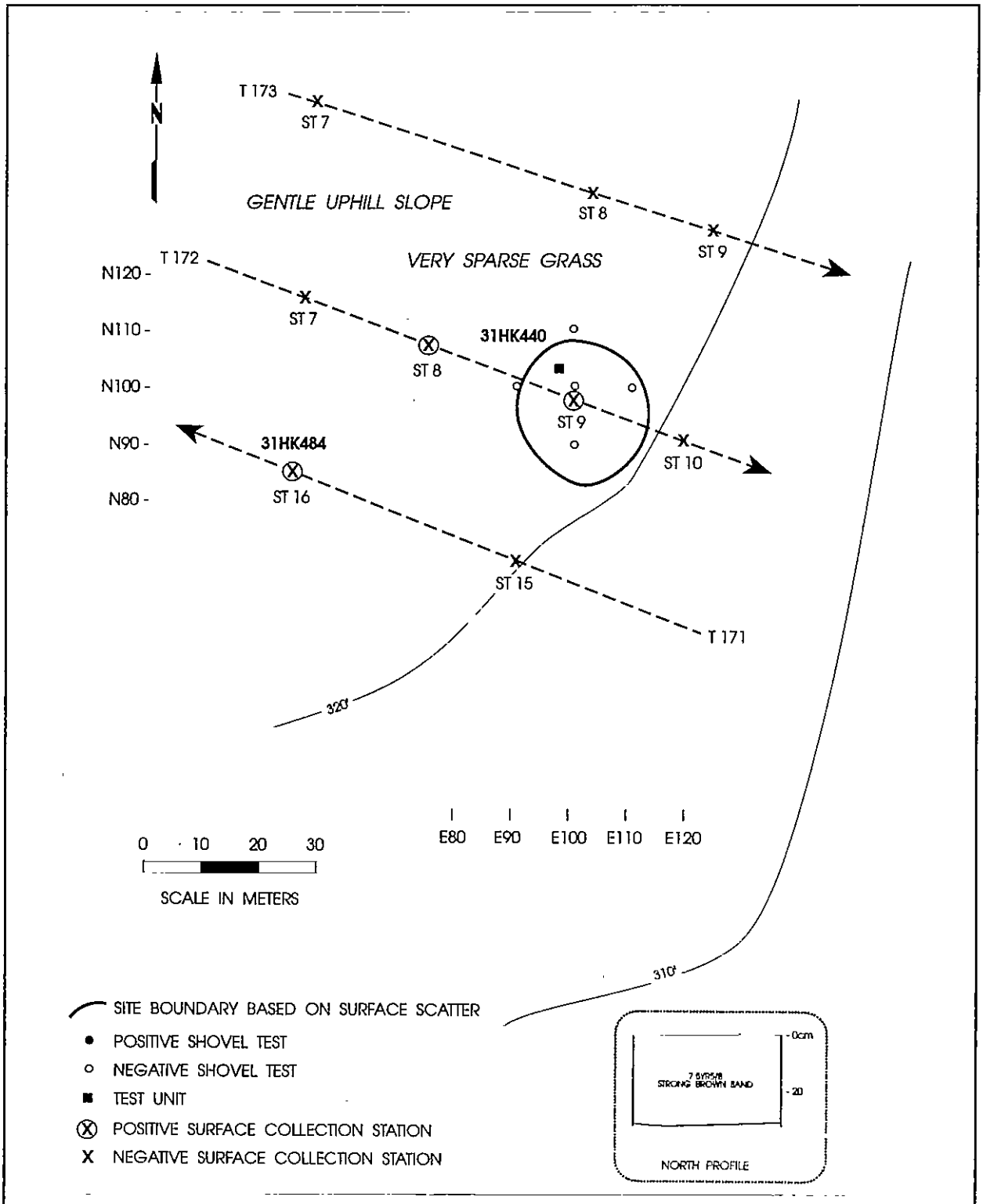

Figure 58. Map of 31HK440 and test unit profile.

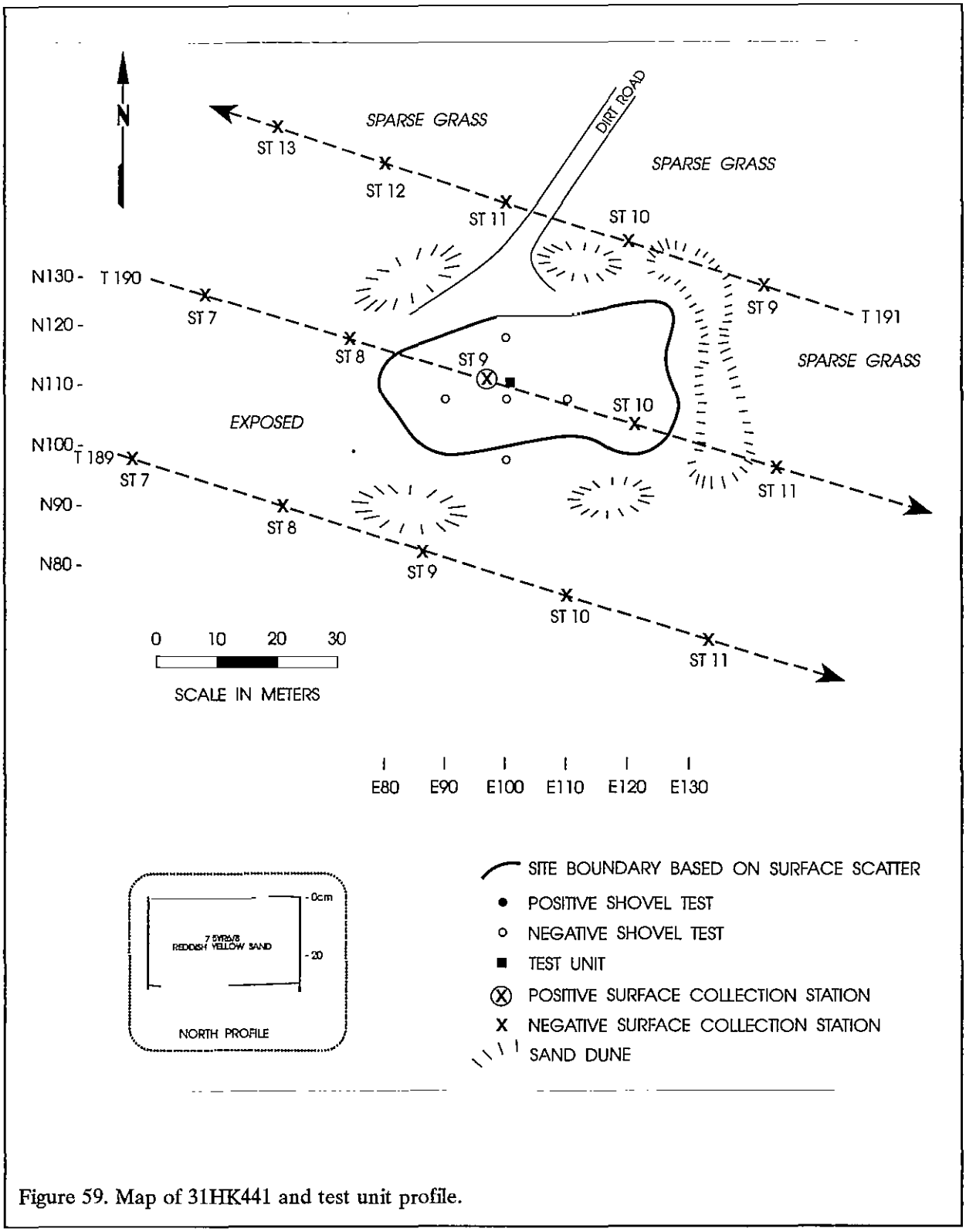

Figure 59. Map of 31HK441 and test unit profile.

is 52 m^2 in size (Figure 60).

The site area was entirely exposed providing excellent surface visibility. Collected from a 10 m east-west by 8 m north-south area were eight metavolcanic interior flakes. A shovel test was placed in the center of the scatter which yielded two metavolcanic interior flakes. Eight additional tests were excavated at 10 m intervals in cardinal direction. All shovel tests were excavated to approximately 45 cm below surface and none of the additional tests yielded artifacts. A 50 cm square test unit was also placed at the site which was excavated to 30 cm below surface. No artifacts were encountered. Ten artifacts were collected from the site.

The soil profile consisted of 12 cm of yellowish brown sand (10YR5/6) overlying strong brown sand (7.5YR5/8) (see Figure 60). The soils are classified as Lakeland sands which typically have an Ap horizon of dark gray sand overlying the yellowish brown sand (Hudson 1984). This indicates that the site is deflated.

No diagnostic artifacts were recovered from 31HK442 and it probably functioned as a lithic work station. Since the artifacts at the site are sparse, the site is deflated, and there are few subsurface remains, Site 31HK442 is recommended as not eligible for inclusion on the National Register of Historic Places.

31HK443

Site 31HK443 is located 2850 m north of Longstreet Road and 380 m east of Ray Road. The central UTM coordinates are N3890890 E670020. The site is situated in an area of upland flats and the nearest source of water is located 270 m south of the site. The elevation is 103 m and it is 96 m^2 in size (Figure 61).

Vegetation at the site consists of sparse grass providing good visibility. Collected were seven quartz interior flakes, six metavolcanic interior flakes, and one metavolcanic projectile point tip. One shovel test was placed near the center of the site with four additional tests excavated at 10 m intervals in cardinal directions. All tests were excavated to about 30 cm below surface and none yielded artifacts. One 50 cm square test unit was placed at the site and excavated to a depth of 30 cm below surface. No artifacts were encountered. Fourteen artifacts were collected from the site.

The soil profile consisted of strong brown sand (7.5YR5/8) to 30 cm (see Figure 61). The soils are classified as Lakeland sands. Typically strong brown sands are not encountered in Lakeland sands until a depth of 37 to 110 cm below surface (Hudson 1984). This indicates that the site is badly deflated.

No diagnostic artifacts were recovered from the site to provide temporal placement. The site may have functioned as a lithic work station. Since the site is deflated and there were no subsurface remains, it is unlikely that the site can address significant research questions. Site 31HK443 is recommended as not eligible for inclusion on the National Register of Historic Places.

Table 12.
Surface Collection from 31HK444

	Metavolcanic			Quartz			
Provenience	Interior	Secondary	bifaces	Interior	Bifaces	Tools	FCR
Gen. Surface	20	2	2	18	1	1	
Locus 1	9			42			
Locus 2	11		1	35			6
Western edge			1				
Total	40	2	4	95	1	1	6

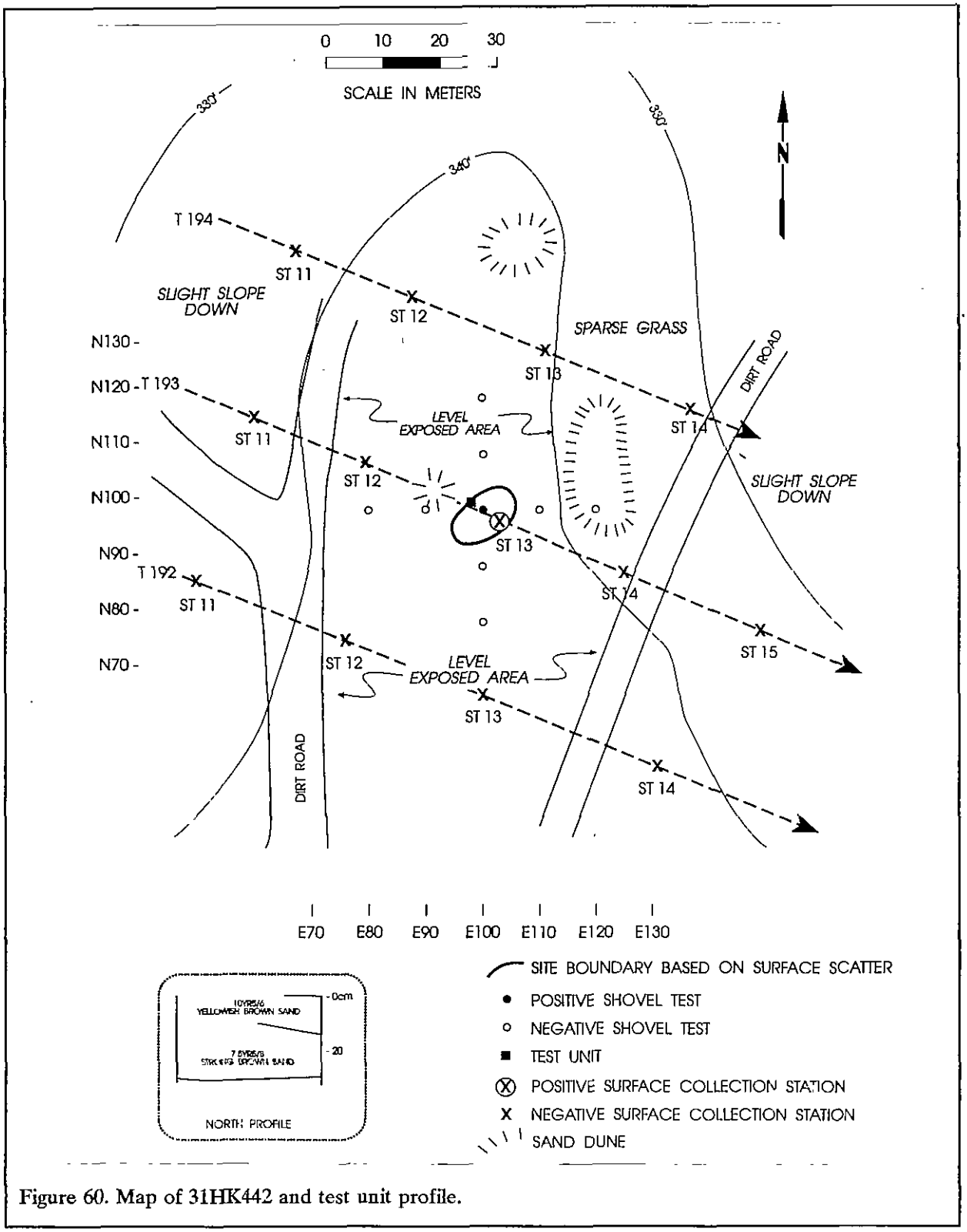

Figure 60. Map of 31HK442 and test unit profile.

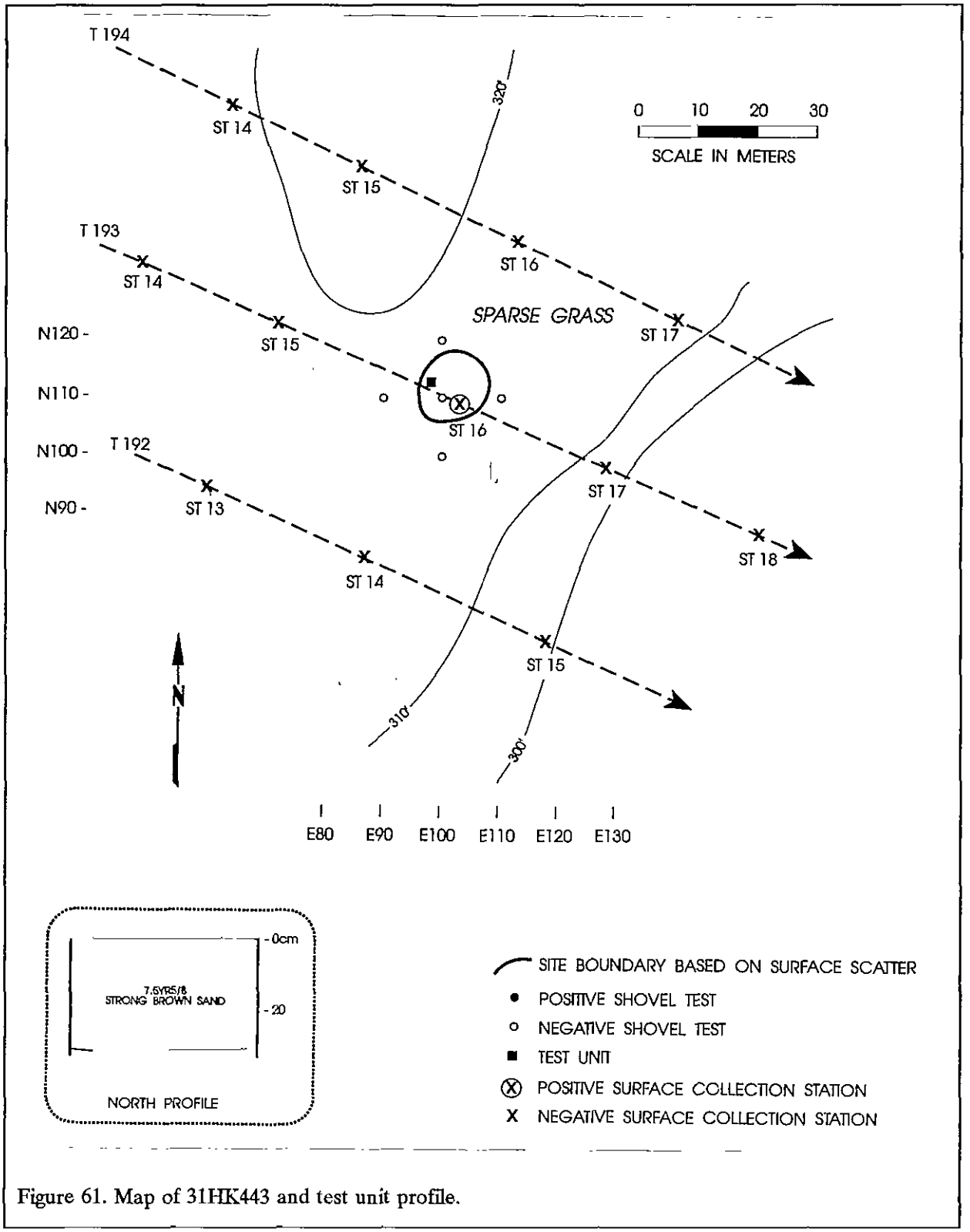

Figure 61. Map of 31HK443 and test unit profile.

Table 13.
Projectile Point Measurements from 31HK444

Measurement	Guilford	Stanly	Yadkin
Length	91.76 mm	66.33 mm (est)	43.60 mm (est)
Blade length	N/A	54.05 mm (est)	N/A
Blade width	23.53 mm	36.47 mm	31.95 mm
Haft width	N/A	14.42 mm	N/A
Thickness	13.43 mm	6.93 mm	6.17 mm

31HK444

Site 31HK444 is located 920 m south of Manchester Road and 1070 m northeast of Ray Road. The central UTM coordinates are N3891620 E670320. The site is situated on a ridge nose overlooking an intermittent stream to the north and Jumping Creek to the east. Both sources of water are located about 50 m from the site. The elevation is 91 m and it is 8,384 m^2 in size (Figure 62).

Vegetation consists of sparse grass providing good surface visibility. A collection was made in an area measuring 150 m north-south by 110 m east-west. This collection was semi-controlled with a general collection, collections from two concentrations, and a western extension of the site (Table 12).

Besides debitage, two broken bifaces were collected, as well as one quartz cobble hammerstone, six fragments of fire cracked rock and three projectile points - Stanly, Guilford, and Yadkin (measurements are provided in Table 13).

Shovel testing at the site consisted of a 10 m interval transect oriented with the landform. Four additional tests were excavated in 10 m intervals in cardinal directions from a shovel test centrally located in locus 1. A total of 23 shovel tests were excavated to a depth of about 45 cm below surface and none yielded artifactual remains. A 50 cm square test unit was also placed at locus 1 which was excavated to a depth of 30 cm below surface. No artifacts were encountered in the test, although the site produced a total of 150 artifacts.

The soil profile consisted of 30 cm of strong brown sand (7.5YR5/8) with a dark brown thin irregular line (less than 1 cm in thickness) at about 10 cm below surface (see Figure 62). The soils are classified at Lakeland sands which typically do not contain strong brown sand until a depth of 37 to 110 cm below surface (Hudson 1984). This indicates that the site is heavily eroded.

Artifacts from 31HK444 indicate that the site dates to the Middle Archaic and Middle Woodland Periods. Unfortunately, the site has been damaged by road grading, clear cutting, and deflation/erosion. No subsurface artifacts were encountered, therefore it is unlikely that the site will be able to address significant research questions. As a result, 31HK444 is recommended as not eligible for inclusion on the National Register of Historic Places.

31HK445

Site 31HK445 is located 240 m south of Manchester Road and 1640 m northeast of Ray Road. The central UTM coordinates are N3892300 E670680. The site is situated on a drainage sideslope with the nearest source of water located approximately 40 m to the east at a springhead. The elevation is 91 m and it is 1316 m^2 in size (Figure 63).

Vegetation at the site was very sparse and there was a dirt road running through the northeastern portion of the site providing excellent surface visibility. Collected from an area measuring 46 m east-west by 40 m north-south were two metavolcanic interior flakes, four quartz interior flakes, and two fragments of manganese glass. Four shovel tests were excavated at 10 m intervals in cardinal directions from a central shovel test. All tests were excavated to approximately 30 cm below surface and none yielded artifacts. A 50 cm unit, excavated to 30 cm below surface, was placed in the vicinity of the central shovel test. No artifacts were encountered in the unit, although eight artifacts were collected from the site.

The profile at the site consisted of 8 cm of yellowish brown sand (10YR5/6) overlying 3 cm of yellow sand (10YR7/6) over 19 cm of strong

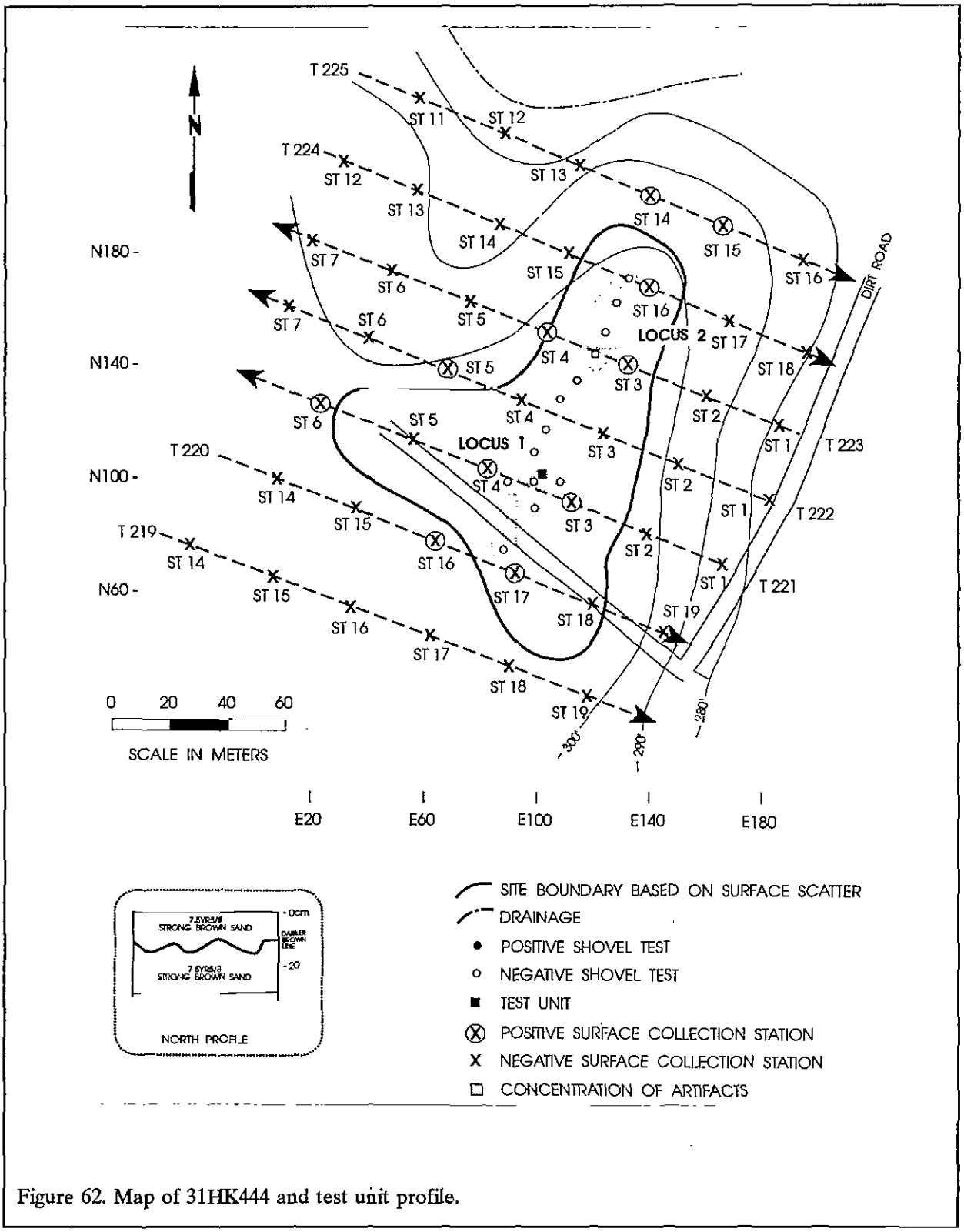

Figure 62. Map of 31HK444 and test unit profile.

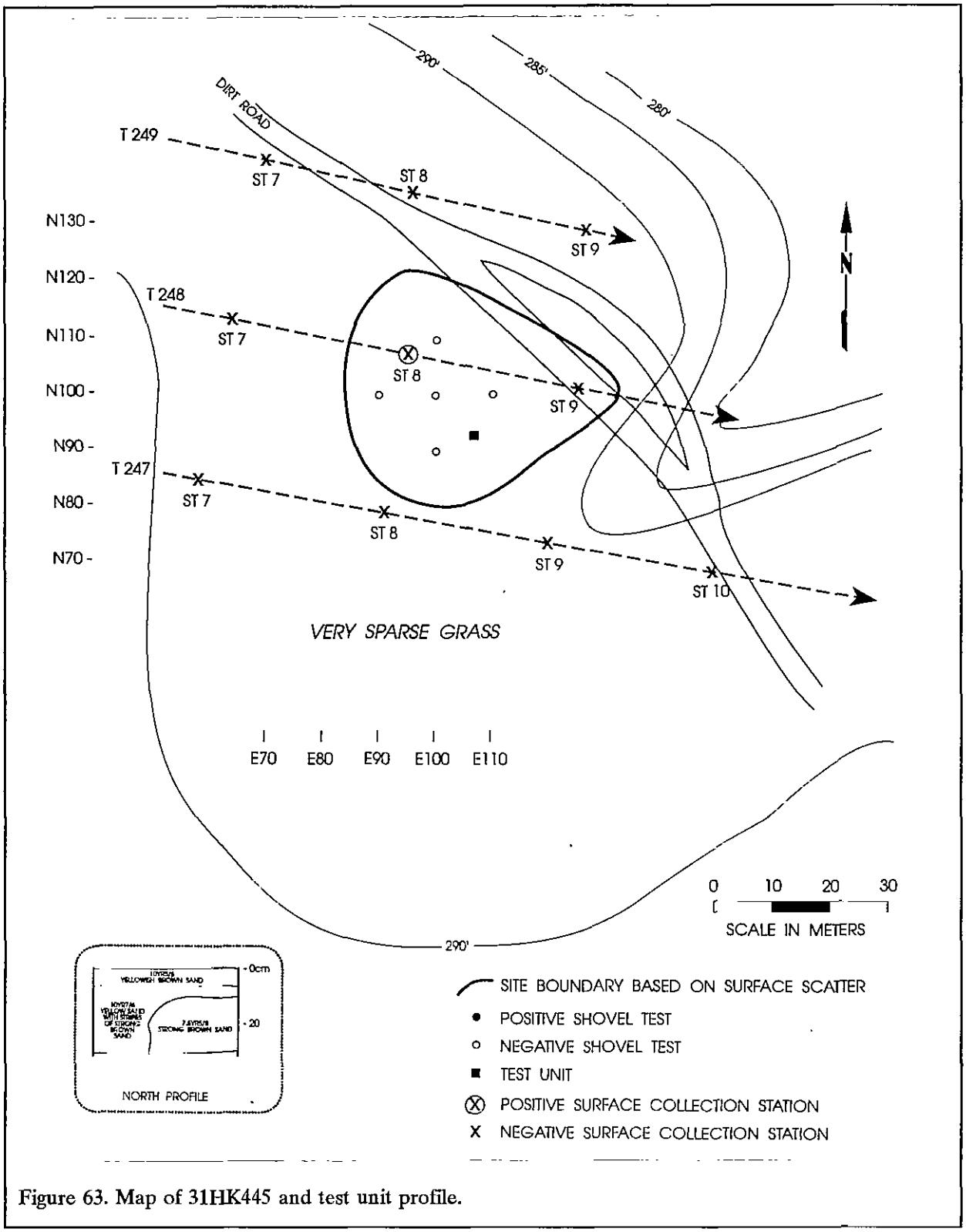

Figure 63. Map of 31HK445 and test unit profile.

brown sand (7.5YR5/8) intruded by yellow sand with strong brown stripes in the west half of the north profile (see Figure 63). The soils are classified as Lakeland sands which typically have an Ap horizon of dark gray (10YR4/1) sand (Hudson 1984). The absence of this layer indicates that the site is eroded.

No temporally diagnostic artifacts were recovered and given the types of artifacts present, 31HK445 probably functioned as a lithic work station. The site also contained two fragments of manganese glass which date to the late nineteenth/early twentieth centuries. Since the site has been badly eroded and contains no subsurface remains, it is unlikely that it can address significant research questions. As a result, 31HK445 is recommended as not eligible for inclusion on the National Register of Historic Places.

31HK446

Site 31HK446 is located 1240 m south of Manchester Road and 1140 m northwest of Ray Road. The central UTM coordinates are N3891260 E670670. The site is situated on a ridge nose overlooking a drainage with a springhead located approximately 170 m to the southeast. The elevation is 85 m and it is 1,036 m^2 in size (Figure 64).

Vegetation at the site consists of very sparse grass providing excellent visibility. Surface collected from an area measuring 35 m north-south by 42 m east-west were 15 quartz interior flakes, 15 metavolcanic interior flakes, and one metavolcanic biface fragment. One shovel test was placed near the center of the site with four additional tests excavated at 10 m intervals in cardinal directions. All were excavated to approximately 40 cm below surface and none yielded artifacts. One 50 cm test unit was also placed at the site and excavated to 30 cm below surface. In the first 10 cm two quartz interior flakes and two metavolcanic interior flakes were recovered. Thirty-five artifacts were collected from the site.

The soil profile consisted of 30 cm of strong brown sand (7.5YR5/8) (see Figure 64). While the soil survey (Hudson 1984) classifies the soils at the site as Candor sand. It seems more likely that these soils are actually Lakeland sands. Strong brown soils are not encountered in Candor sands until 150 cm below surface while Lakeland sands have strong brown sand at 37 cm below surface (Hudson 1984). Nonetheless, the profile indicates that the site is badly eroded. In addition, there are several erosional gullies in the southern portion of the site.

No diagnostic artifacts were encountered to provide temporal affiliation. Based on the artifacts recovered during the current survey, the site probably functioned as a lithic work station. The site produced few subsurface remains and is damaged by erosion and clear cutting. Therefore, it is unlikely that the site can address significant research questions. As a result, 31HK446 is recommended as not eligible for inclusion on the National Register of Historic Places.

31HK447

Site 31HK447 is located 1640 m south of Manchester Road and 780 m east of Ray Road. The site is situated on an upland slope with the closest source of water located 300 m to the south at a springhead. The elevation is 91 m and it is 136 m^2 in size (Figure 65).

Vegetation at the site consists of sparse grass and a road cut through the site has provided excellent viisibility. Surface collected from a 10 m by 10 m area were 11 quartz interior flakes and two metavolcanic interior flakes. A shovel test was placed in the center of the site with four shovel tests excavated in cardinal directions at 10 m intervals. All tests were excavated to 30 cm below surface and none yielded subsurface remains. A 50 cm test unit was placed in the site area and excavated to a depth of 30 cm below surface. One quartz interior flake and one quartz primary flake were recovered in the top 10 cm. Fifteen artifacts were collected from the site.

Soil profiles consist of yellowish brown sand (10YR5/6) (see Figure 65). The soils are classified as Lakeland sands which typically have an Ap horizon of dark gray sand (10YR4/1). The absence of this Ap horizon indicates that the site

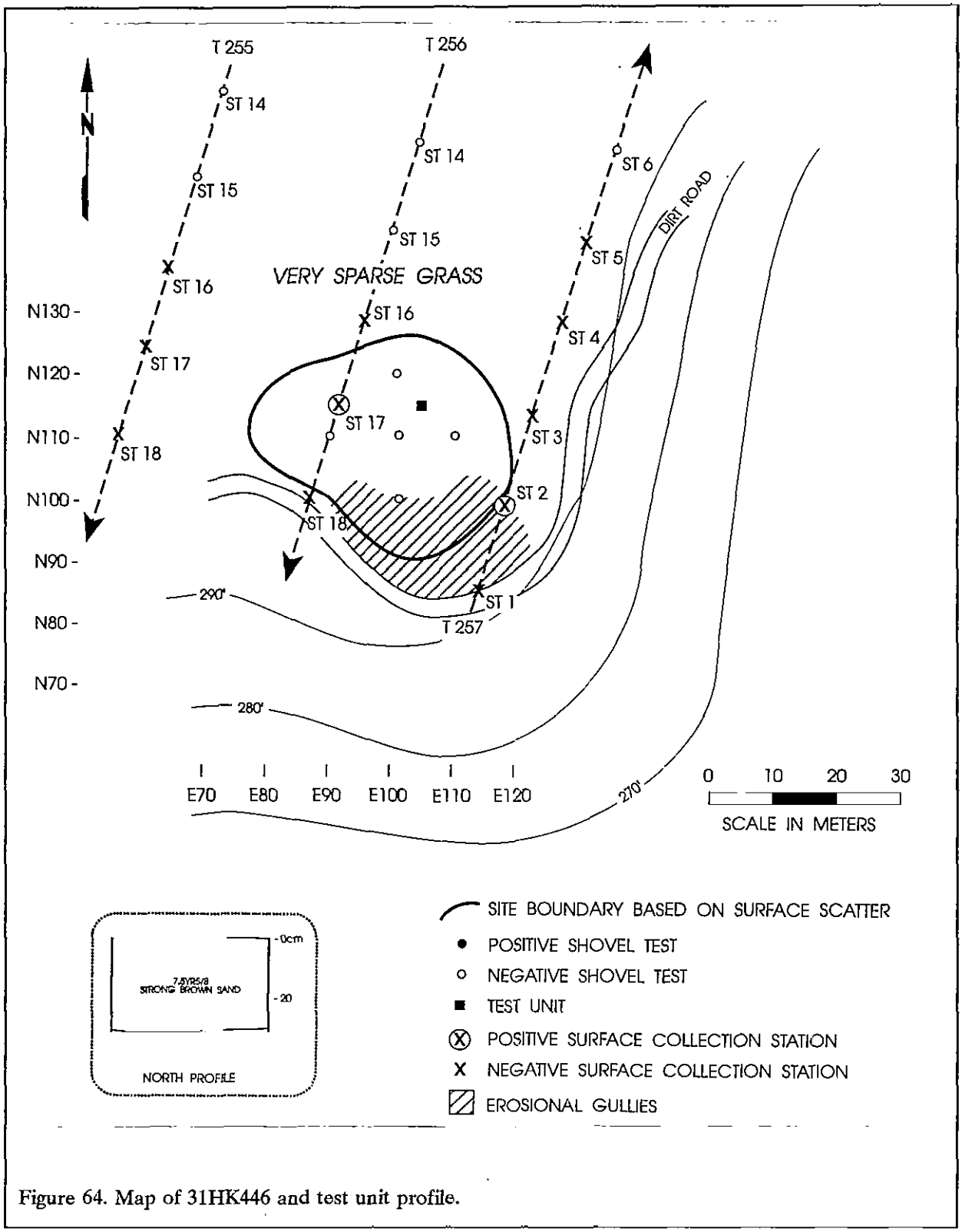

Figure 64. Map of 31HK446 and test unit profile.

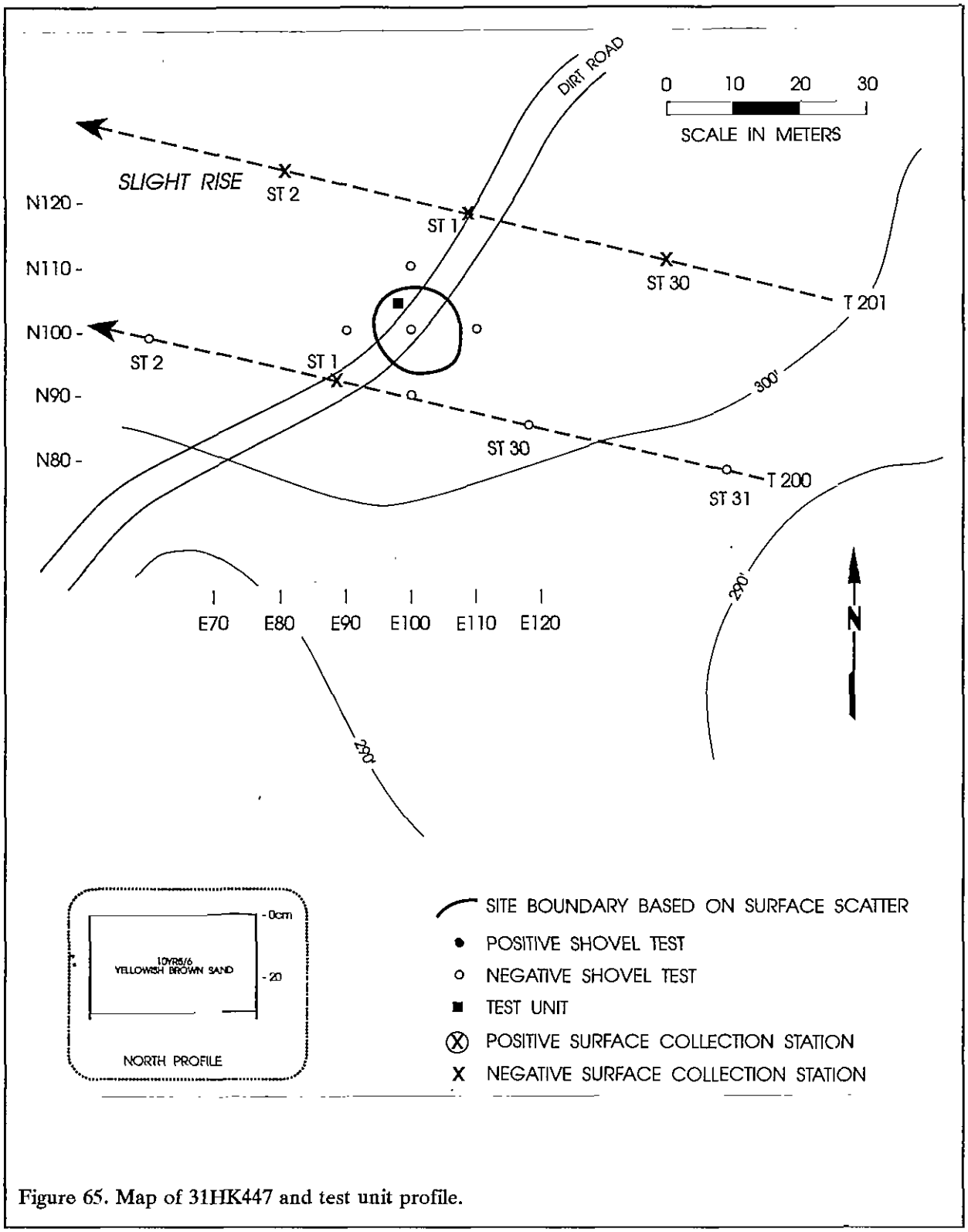

Figure 65. Map of 31HK447 and test unit profile.

is eroded.

No diagnostic artifacts were recovered from the site to provide temporal affiliation. The site probably functioned as a lithic work station given the presence of only debitage. Since the site produced few subsurface artifacts and has been damaged by clear cutting, erosion, and road grading, it is unlikely to yield significant data. As a result, 31HK447 is recommended as not eligible for inclusion for the National Register of Historic Places.

31HK508

Site 31HK508 is located 1100 m north of Longstreet Road and 50 m west of Ray Road. Topography at the site consists of a slight rise above the immediate surrounding landscape. The closest source of water is springhead located 540 m to the northeast. The site is at an elevation of 112 m and it is 496 m^2 in size (Figure 66).

Vegetation at the site consists of very sparse grass and surface visibility was excellent. A surface collection was obtained at the site which consisted of 10 metavolcanic interior flakes, four quartz interior flakes and one Caraway projectile point found in a 26 m east-west by 28 m north-south area. Measurements obtained from the Caraway point are: length — 20.97 mm; width — 14.18 mm; thickness — 5.69 mm. A central shovel test yielded one metavolcanic interior flake within the first 10 cm. Eight additional shovel tests were placed at the site in cardinal directions at 10 m intervals. None of these additional tests yielded artifacts. All were taken to a depth of 40 cm below surface. A 50 cm square unit was placed just north of the positive shovel test and no artifacts were recovered. Sixteen artifacts were recovered from the site.

The soil profile consisted of 13 cm strong brown sand (7.5YR5/8) overlying 15 cm of hard packed strong brown sand (see Figure 66). The soils are classified as Lakeland sands which typically have a dark gray sand Ap horizon (Hudson 1984). The absence of these soils at the site suggest a great deal of erosion and/or deflation.

Site 31HK508 dates to the Late Woodland Period based on the presence of a Caraway projectile point. The artifactual remains were sparse (n=16) and only one test yielded any subsurface artifacts. The site has also been subjected to a great deal of erosion and/or deflation and it is unlikely that the site can address any significant research question. As a result, 31HK508 is recommended as not eligible for inclusion on the National Register of Historic Places.

Isolated Occurrences

Isolated occurrences, which consisted of five or less artifacts, like sites, were always discovered during pedestrian survey. In all cases, subsequent testing revealed no subsurface remains. All occurrences are recommended as not eligible for inclusion on the National Register of Historic Places.

Although some of these occurrences were originally defined in Loftfield's survey as sites, they are not defined as revisted sites in this study. Just as the condition of sites can change, so too can their very status as sites. Today, as a result of a variety of natural and man-induced factors, these sites have been transformed to occurrences.

Revisited Occurrences

31HK78

31HK78 was initially identified by Loftfield (1979:G-57) who collected one scraper. No subsurface testing was done and no additional work was recommended. During the current survey, two metavolcanic interior flakes and three quartz interior flakes were surface collected from a drainage sideslope. The central UTM coordinates are N3888440 E669440.

31HK79

31HK79 was initially identified by Loftfield (1979:G-58) who collected 51 flakes. No subsurface testing was done and no additional work was recommended. During the current survey, one metavolcanic interior flake was surface collected

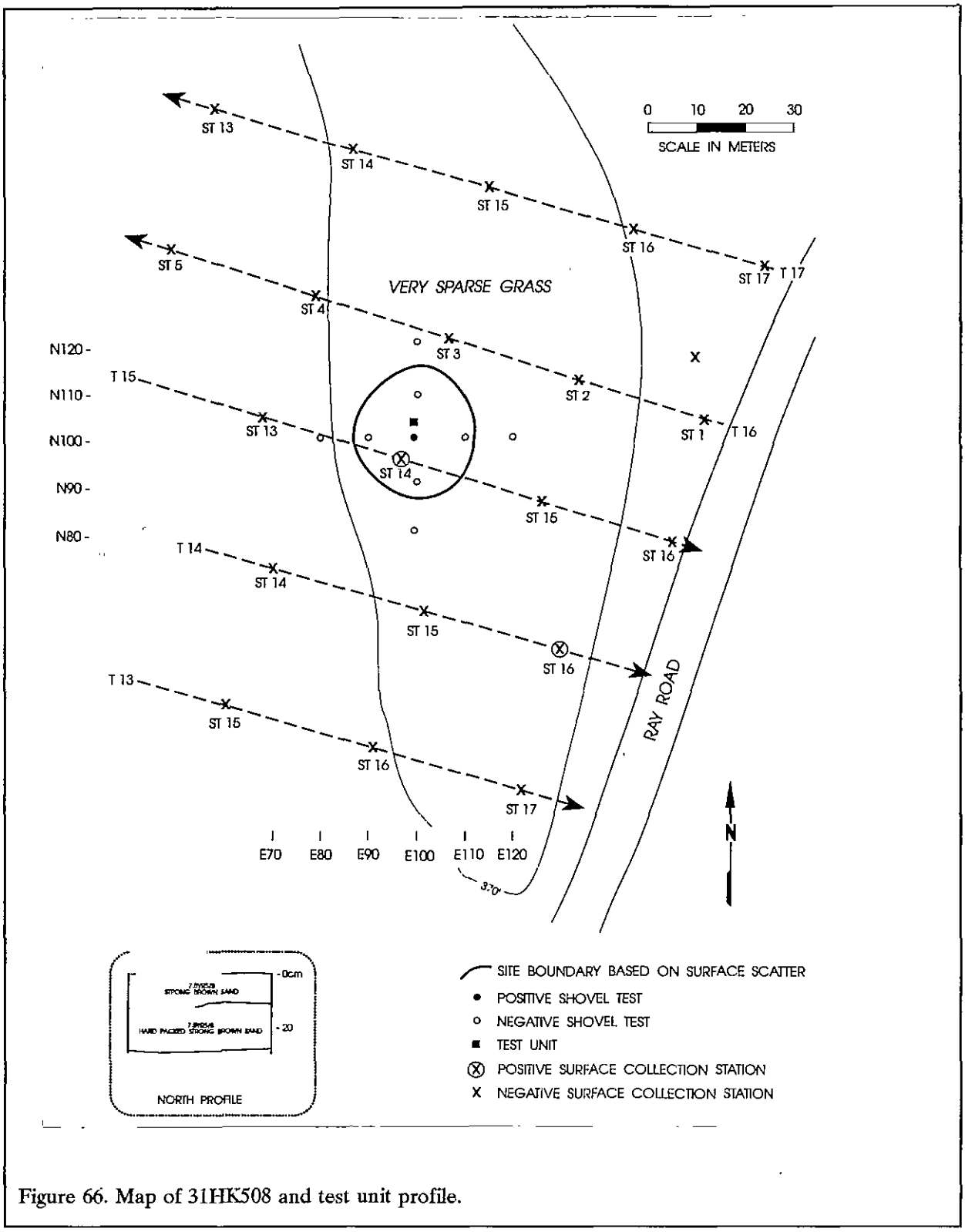

Figure 66. Map of 31HK508 and test unit profile.

from a drainage sideslope. The central UTM coordinates are N3888300 E669260.

31HK84

31HK84 was initially identified by Loftfield (1979:G-58) who collected one blade base and 43 flakes. No subsurface testing was done and no additional work was recommended. During the current survey two metavolcanic interior flakes and three quartz interior flakes were surface collected from an upland slope. The central UTM coordinates are N3888880 E669560.

31HK87

31HK87 was initially identified by Loftfield (1979:G-59) who collected two Savannah River projectile point bases, one biface fragment, and 27 flakes. No subsurface testing was done and no additional work was recommended. During the current survey one piece of fire cracked rock was surface collected from an upland slope. The central UTM coordinates are N3888100 E669580.

31HK88

31HK88 was initially identified by Loftfield (1979:G-59) who collected two Morrow Mountain projectile points, two bifaces, and 79 flakes. No subsurface testing was done and no additional work was recommended. During the current survey one quartz interior flake was surface collected from an upland slope. The central UTM coordinates are N3889140 E669540.

31HK91

31HK91 was initially identified by Loftfield (1979:G-60) who collected one biface fragment and seven flakes. No subsurface testing was done and no additional work was recommended. During the current survey one metavolcanic interior flake was surface collected from an upland slope. The central UTM coordinates are N3889340 E669460.

31HK92

31HK92 was initially identified by Loftfield (1979:G-60) who collected one Morrow Mountain II projectile point, three knives, one biface fragment, one Caraway drill, one scraper, and 101 flakes. No subsurface testing was done and no additional work was recommended. During the current survey one metavolcanic flake was surface collected from a knoll. The central UTM coordinates are N3889560 E669840.

31HK93

31HK93 was initially identified by Loftfield (1979:G-60) who collected one Savannah River projectile point, one Lecroy projectile point base, two scrapers, one projectile point fragment, one blade fragment, three biface fragments, one gorget fragment, and 191 flakes. No subsurface testing was done and additional testing was recommended. During the current survey only two quartz interior flakes were surface collected from a drainage sideslope. The central UTM coordinates are N3889740 E669700.

31HK105

31HK105 was initially identified by Loftfield (1979:G-63) who collected one possible Paleoindian scraper and 74 flakes. No subsurface testing was done although additional testing was recommended. During the current survey one quartz interior flake was surface collected from a knoll. The central UTM coordinates are N3890420 E669560.

31HK106

31HK106 was initially identified by Loftfield (1979:G-63) who collected one Palmer projectile point and three flakes. No subsurface testing was done and no additional work was recommended. During the current survey one metavolcanic interior flake was surface collected from an upland slope. The central UTM coordinates are N3890280 E669520.

31HK110

31HK110 was initially identified by Loftfield (1979:G-64) who collected one Savannah River projectile point, one worked flake, and six flakes. No subsurface testing was done and no

additional work was recommended. During the current survey two metavolcanic interior flakes were surface collected from an knoll. The central UTM coordinates are N3889800 E669260.

31HK113

31HK113 was initially identified by Loftfield (1979:G-65) who collected one Morrow Mountain II projectile point, one scraper, two prehistoric sherds, and 13 flakes. No subsurface testing was done and no additional work was recommended. During the current survey one quartz interior flake was collected from an upland slope. The central UTM coordinates are N3889140 E668960.

31HK114

31HK114 was initially identified by Loftfield (1979:G-65) who collected one scraper and seven flakes. No subsurface testing was done and no additional work was recommended. During the current survey one quartz interior flake was collected from an upland slope. The central UTM coordinates are N3888960 E669120.

31HK116

31HK116 was initially identified by Loftfield (1979:G-65) who collected one Morrow Mountain II projectile point, one scraper, 12 prehistoric sherds, and 48 flakes. No subsurface testing was done and no additional work was recommended. During the current survey one unidentified broken metavolcanic projectile point was collected from an upland slope. The projectile point is similar to one collected at 31HK148. It is a poorly flaked stemmed lanceolate. Measurements are: length — 75.60 mm (estimated); blade length — 60.94 mm (estimated); blade width — 30.40 mm; haft width — 14.91 mm; thickness — 10.28 mm. The UTM coordinates are N3889000 E668820.

31HK117

31HK117 was initially identified by Loftfield (1979:G-66) who collected one uniface knife and five flakes. No subsurface testing was done and no additional work was recommended. During the current survey three quartz interior flakes were surface collected from an upland slope. The central UTM coordinates are N3888860 E668840.

31HK129

31HK129 was initially identified by Loftfield (1979:G-69) who collected one biface fragment. No subsurface testing was done and no additional work was recommended. During the current survey two quartz interior flake and one metavolcanic interior flake was collected from a drainage sideslope. The central UTM coordinates are 3890620 E669980.

31HK156

31HK156 was initially identified by Loftfield (1979:G-75) who collected one biface, four biface fragments, and 50 flakes. No subsurface testing was done and no additional work was recommended. During the current survey one metavolcanic and two quartz flakes were collected from a ridge nose slope. The central UTM coordinates are N3891200 E670660.

31HK157

31HK157 was initially identified by Loftfield (1979:G-75) who collected one Big Sandy projectile point, one Caraway projectile point fragment, one knife, two biface fragments, and 54 flakes. No subsurface testing was done and additional testing was recommended. During the current survey one metavolcanic interior flake was surface collected from a ridge nose. The central UTM coordinates are N3891400 E670760.

31HK158

31HK158 was initially identified by Loftfield (1979:G-75) who collected one Savannah River projectile point, one knife, one prehistoric sherd, and 65 flakes. No subsurface testing was done and additional testing was recommended. During the current survey four quartz interior flakes were surface collected from a drainage sideslope. The central UTM coordinates are

N3891460 E670660.

31HK164

31HK164 was initially identified by Loftfield (1979:G-77) who collected one Palmer projectile point, one scraper, one scraper/graver, one projectile point base, one biface, three utilized flakes, two sherds, and 47 flakes. No subsurface testing was done and additional testing was recommended. During the current survey three metavolcanic interior flakes were surface collected from a drainage sideslope. The central UTM coordinates are N3891400 E670420.

31HK165

31HK165 was initially identified by Loftfield (1979:G-77) who collected one knife and 11 flakes. No subsurface testing was done and no additional work was recommended. During the current survey four quartz interior flakes and one metavolcanic flake were found on an upland slope. The central UTM coordinates are N3891340 E670440.

31HK175

31HK175 was initially identified by Loftfield (1979:G-79) who collected three scrapers, one knife, two uniface fragments, and 91 flakes. No subsurface testing was done and additional testing was recommended. During the current survey one broken metavolcanic Guilford projectile point was collected from a drainage sideslope. Measurements on the Guilford point are: length — 59.37 mm (estimated); width — 18.04 mm; thickness — 10.19 mm. The central UTM coordinates are N3891940 E670720.

31HK176

31HK176 was initially identified by Loftfield (1979:G-79) who collected two prehistoric sherds and six flakes. No subsurface testing was done and no additional work was recommended. During the current survey three metavolcanic interior flakes and one quartz interior flake was surface collected from a ridge nose. The central UTM coordinates are N3892100 E670700.

31HK177

31HK177 was initially identified by Loftfield (1979:G-79) who collected one biface fragment, two historic sherds, and 32 flakes. No subsurface testing was done and no additional work was recommended. During the current survey one broken quartz biface was surface collected from a drainage sideslope. The central UTM coordinates are N3892140 E670640.

New Occurrences

31HK90

Four quartz interior flakes and one metavolcanic Halifax projectile point were surface collected from a drainage sideslope. Measurements on the Halifax projectile point were: length — 32.85 mm; blade length — 26.58 mm; blade width — 14.55 mm; haft width — 16.30 mm; thickness — 6.88 mm. The central UTM coordinates are N3891320 E670280. The site number was initially assigned by Loftfield (1979:G-59) to a different site on the tract. However, during the current survey that site was found to be a part of 31HK89 and the number 31HK90 was to be reissued to a new site by the North Carolina Office of State Archaeology. The number was reassigned to this occurrence.

31HK448

One metavolcanic interior flake was surface collected on an upland slope. The central UTM coordinates are N38888920 E669000.

31HK449

One quartz interior flake and one quartz Hardaway projectile point base was surface collected in an area of upland flats. The only measurement available on the Hardaway base was haft width which is 21.15 mm. The central UTM coordinates are N3888900 E669160.

31HK450

One metavolcanic scraper was surface collected on an upland slope. The central UTM coordinates are N3888880 E668920.

31HK451

One metavolcanic interior flake was surface collected on an upland slope. The central UTM coordinates are N3888980 E668960.

31HK452

One metavolcanic interior flake was surface collected on a drainage sideslope. The central UTM coordinates are N3889080 E668760.

31HK453

One quartz interior flake was surface collected on a drainage sideslope. The central UTM coordinates are N3889200 E668880.

31HK454

One metavolcanic interior flake was surface collected in an area of upland flats. The central UTM coordinates are N3889260 E669260.

31HK455

One quartz interior flake was surface collected on the edge of a knoll. The central UTM coordinates are N3889320 E669120.

31HK456

Three quartz interior flakes were surface collected in an area of upland flats. The central UTM coordinates are N3889460 E669000.

31HK457

One metavolcanic projectile point tip was surface collected on a knoll. The central UTM coordinates are N3880380 E669140.

Table 14.
Measurements on Guilford points at 31HK463

Measurement	#1	#2
length	66.55 mm	71.79 mm
width	22.22 mm	21.51 mm
thickness	8.42 mm	10.29 mm

31HK458

One metavolcanic interior flake was surface collected in an area of upland flats. The central UTM coordinates are N3889400 E669280.

31HK459

Two metavolcanic interior flakes were surface collected in an area of upland flats. The central UTM coordinates are N3889500 E669080.

31HK460

One quartz interior flake and one metavolcanic interior flake were surface collected on a knoll. The central UTM coordinates are N3889700 E669380.

31HK461

Two small sherds, one metavolcanic interior flake, and one quartz interior flake were collected on an upland slope. The central UTM coordinates are N3888740 E668700.

31HK462

One reworked metavolcanic Savannah River Stemmed projectile point was surface collected from an upland slope. Measurements on the projectile points are: length — 43.74 mm; blade length — 31.42 mm; blade width — 25.52 mm; haft width — 20.02 mm; thickness — 7.83 mm. The central UTM coordinates are N3888740 N668600.

31HK463

Two quartz interior flakes and two

metavolcanic Guilford projectile points were surface collected from an area of upland flats. The measurements on the Guilford points are provided in Table 14. The central UTM coordinates are N3888580 E668600.

31HK464

Four quartz interior flakes were surface collected from an area of upland flats. The central UTM coordinates are N3888420 E669000.

31HK465

One Yadkin sherd with an unidentifiable surface decoration was surface collected from an area of upland flats. The central UTM coordinates are N3888340 E668800.

31HK466

One quartz interior flake was surface collected from an area of upland flats. The central UTM coordinates are N388800 E669540.

31HK467

One quartz interior flake was surface collected from an area of upland flats. The central UTM coordinates are N3888100 E669460.

31HK468

One quartz interior flake and one metavolcanic interior flake were surface collected from an area of upland flats. The central UTM coordinates are N3888120 E669280.

31HK469

One quartz interior flake and one metavolcanic interior flake were surface collected from an area of upland flats. The central UTM coordinates are N3888240 E669160.

31HK470

One quartz interior flake was surface collected from an area of upland flats. The central UTM coordinates are N3889840 E669360.

31HK471

One quartz interior flake was surface collected from a ridge top. The central UTM coordinates are N3889980 E669460.

31HK472

Two quartz interior flakes were surface collected from a ridge top. The central UTM coordinates are N3889920 E669420.

31HK473

Four metavolcanic interior flakes and one quartz interior flake were surface collected from an upland slope. The central UTM coordinates are N3890040 E669320.

31HK474

One quartz interior flake was surface collected from a ridgetop. The central UTM coordinates are N3890360 E669520.

31HK475

Two metavolcanic interior flakes and three quartz flakes were surface collected from a drainage sideslope. The central UTM coordinates are N3888440 E669440.

31HK476

One quartz secondary flake was surface collected from a ridge nose. The central UTM coordinates are N3888440 E669580.

31HK477

Three quartz interior flakes and two metavolcanic interior flakes were surface collected from an upland slope. The central UTM coordinates are N3999100 E669460.

31HK478

Two metavolcanic interior flakes and one quartz interior flake were surface collected from an upland slope. The central UTM coordinates are

N3888100 N669560.

31HK479

One quartz interior flake was surface collected from a ridgetop. The central UTM coordinates are N3889200 E669300.

31HK480

One Hanover Cord Marked sherd was surface collected from a knoll. The central UTM coordinates are N3889460 E669440.

31HK481

One metavolcanic interior flake and two quartz interior flakes were surface collected from a drainage sideslope. The central UTM coordinates are N3889360 E669960.

31HK482

One quartz interior flake was surface collected from a drainage sideslope. The central UTM coordinates are N3889720 E669800.

31HK483

Three quartz interior flakes were surface collected from an upland slope. The central UTM coordinates are N3890100 E669660.

31HK484

One quartz interior flake was surface collected from an area of upland flats. The central UTM coordinates are N3890360 E669640.

31HK485

Two quartz interior flakes and two metavolcanic interior flakes were surface collected from an upland slope. The central UTM coordinates are N3890320 E669900.

31HK486

One quartz interior flake and one metavolcanic interior flake were surface collected from an upland slope. The central UTM coordinates are N3890420 E669900.

31HK487

Four quartz interior flakes and one metavolcanic interior flake were surface collected from a drainage sideslope. The central UTM coordinates are N3890520 E670040.

31HK488

One metavolcanic projectile point tip and one broken metavolcanic unidentified projectile point were surface collected from an area of upland flats. The projectile point is similar to ones previously described at 31HK116 and 31HK148. Measurements are: length — 62.24 mm (estimated); blade length — 54.53 mm (estimated); blade width — 25.77 mm; haft width — 16.54 mm; thickness — 7.64 mm. The central UTM coordinates are N3890100 E669540.

31HK489

Five quartz interior flakes were surface collected from an area of upland flats. The central UTM coordinates are N3890980 E669700.

31HK490

One metavolcanic interior flake was surface collected from an area of upland flats. The central UTM coordinates are N3890820 E670100.

31HK491

One quartz interior flake was surface collected from an area of upland flats. The central UTM coordinates are N3890940 E669940.

31HK492

One quartz secondary flake was surface collected from an area of upland flats. The central UTM coordinates are N3891040 E669880.

31HK493

Two broken metavolcanic Caraway projectile points were surface collected from a knoll. Measurements are provided in Table 15. The central UTM coordinates are N3891060 E670160.

Table 15.
Measurements from Caraway Points at 31HK493

	#1	#2
Length	20.62 mm (est)	24.22 mm (est)
Width	19.49 mm	24.39 mm (est)
Thickness	3.48 mm	4.05 mm

31HK494

Two metavolcanic interior flakes and one quartz interior flake were surface collected from an area of upland flats. The central UTM coordinates are N3891460 E669980.

31HK495

One metavolcanic projectile point midsection was surface collected from an area of upland flats. The central UTM coordinates are N3891540 E669860.

31HK496

One metavolcanic interior flake was surface collected from an area of upland flats. The central UTM coordinates are N3891520 E670020.

31HK497

One metavolcanic interior flake was surface collected from a drainage sideslope. The central UTM coordinates are N3891520 E669220.

31HK498

One metavolcanic interior flake was surface collected from a drainage sideslope. The central UTM coordinates are N3891620 E669100.

31HK499

Five quartz interior flakes were surface collected from a drainage sideslope. The central UTM coordinates are N3891740 E669120.

31HK500

One quartz cobble fragment and one quartz scraper were surface collected from a drainage sideslope. Measurements on the scraper are: length — 58.47 mm; width — 34.15 mm; thickness — 21.76 mm; angle — 71.50°; weight — 60.81 g. The central UTM coordinates are N3891840 E670200.

31HK501

Three metavolcanic interior flakes and one quartz interior flake were surface collected from a drainage sideslope. The central UTM coordinates are N3891840 E670380.

31HK502

A quartz hammerstone fragment, one quartz interior flake, and one metavolcanic interior flake were surface collected from a drainage sideslope. The central UTM coordinates are N3891880 E670400.

31HK503

One metavolcanic interior flake was surface collected from an area of upland flats. The central UTM coordinates are N3892080 E670440.

31HK504

Three metavolcanic interior flakes were surface collected from a knoll. The central UTM coordinates are N3892160 E670560.

31HK505

Three quartz interior flakes were surface collected from a drainage sideslope. The central UTM coordinates are N3891380 E670660.

31HK506

One unidentified decorated Hanover sherd, one metavolcanic interior flake, and two quartz interior flakes were surface collected from an area of upland flats. The central UTM coordinates are N3891480 E670520.

31HK507

One metavolcanic interior flake and two quartz interior flakes were surface collected from a drainage sideslope. The central UTM coordinates are N3891360 E670340.

Unlocated Sites

A number of the sites which were identified by Loftfield (1979) could not be relocated. These are probably due to one or more reasons: 1) they have been destroyed; 2) they are covered with colluvium and could not be relocated with our shovel tests; 3) they were not accurately located by the previous survey and actually correspond with one of our new sites or new occurrences; or 4) they have been entirely collected. Nonetheless descriptions given by Loftfield are provided with an explanation as to why they may not have been relocated.

31HK82

Site 31HK82 was described as being located 700 m north of Longstreet Road and 25 to 35 m east of Ray Road. Surface collected were three scrapers, three prehistoric sherds, and 19 flakes. No subsurface testing was performed and no additional work was recommended (Loftfield 1979:G-58). This site may have been entirely collected.

31HK83

Site 31HK83 was described as being located 300 m east of Ray Road and 875 m north of Longstreet Road. Surface collected were one scraper fragment, two biface fragments, and eight flakes. No subsurface testing was performed and no additional work was recommended (Loftfield 1979:G-58). This site may have been entirely collected.

31HK85

Site 31HK85 was described as being located 250 m east of Ray Road and about 275 m west of the east border road for the drop zone. Two Savannah River projectile points and 19 flakes were collected from the surface. No subsurface testing was performed and no additional work was recommended (Loftfield 1979:G-59). This site may have been entirely collected.

31HK86

Site 31HK86 was located 950 m north of Longstreet Road and 300 m east of Ray Road. Surface collected were two biface fragments, four sherds, and 34 flakes. No subsurface testing was performed and no additional work was recommended (Loftfield 1979:G-59). This site may have been entirely collected or may be 31HK447 which was found nearby.

31HK95

Site 31HK95 was located 500 m east of Ray Road and about 275 m west of the east border of the drop zone. Collected were one Savannah River projectile point base, one Guilford projectile point base, one biface fragment, five blade fragments, and 91 flakes. No subsurface testing was performed but additional testing was recommended (Loftfield 1979:G-61). This site may have been heavily collected or may have eroded downslope and may have been covered with colluvium. Given the condition of most sites in the project area, it is unlikely that shovel testing would have successfully located the site.

31HK97

Site 31HK97 was located 600 m east of Ray Road and 2250 m north of Longstreet Road. One Hardaway projectile point base and 15 flakes were surface collected. No subsurface testing was performed and no additional work was recommended (Loftfield 1979:G-61). This site may have been entirely collected.

31HK98

Site 31HK98 was located 650 m east of Ray Road and 2300 m north of Longstreet Road. One Guilford projectile point fragment, one possible Morrow Mountain projectile point fragment, three biface fragments, one knife/scraper, three knife fragments, two prehistoric sherds, and 81 flakes were surface collected. No subsurface testing was performed and no additional work was recommended (Loftfield 1979:G-62). This site may have been heavily collected or may have eroded downslope. Given the condition of most sites in the project area, it is unlikely that shovel testing would have successfully located the site.

31HK101

Site 31HK101 was located 2600 m north of Longstreet Road and 700 m east of Ray Road. Surface collected were one biface fragment, one scraper, 17 sherds, and 22 flakes. No subsurface testing was performed and no additional testing was recommended (Loftfield 1979:G-62). This site may be part of 31HK99.

31HK108

Site 31HK108 was located about 2000 m north of Longstreet Road and 250 m west of Ray Road. Surface collected were one biface fragment and 14 flakes. No subsurface testing was performed and no further work was recommended (Loftfield 1979:G-64). This site may have been entirely collected.

31HK111

Site 31HK111 was located 1400 m north of Longstreet Road and 250 m west of Ray Road. Surface collected were one scraper and 28 flakes. No subsurface testing was performed and no further work was recommended (Loftfield 1979:G-64). This may have been entirely collected or was subsequently recorded as 31HK456 in a slightly different location.

31HK119

Site 31HK119 was located 800 m north of Longstreet Road and 500 m west of Ray Road. Surface collected were five prehistoric sherds and nine flakes. No subsurface testing was done and no further work was recommended (Loftfield 1979:G-66). This may have been entirely collected or was subsequently recorded as 31HK462 in a slightly different location.

31HK120

Site 31HK120 was described as being located 75 m west of Sicily Drop Zone and about 40 m east of first drainage. Based on the plotted location of the site on the USGS map, the site is actually within the boundaries of the drop zone. Surface collected were one scraper, 14 prehistoric sherds, and 20 flakes. No subsurface testing was done and no further work was recommended (Loftfield 1979:G-66). This site may have been entirely collected or it may not be in the survey area.

31HK127

Site 31HK127 was located 2875 m north of Longstreet Road and 300 m north of the drainage east of the bend in Ray Road. Surface collected were three Guilford projectile points, one possible Palmer Corner-Notched projectile point, 10 projectile point fragments (two Morrow Mountains, one Savannah River, two Caraway/Pee Dee points, and five unidentified), three bifaces, seven biface fragments, one core, 132 prehistoric sherds, and 116 flakes. No subsurface testing was done although additional testing was recommended (Loftfield 1979:G-69). This site may have been mislocated during the previous survey and may actually be at 31HK443.

31HK149

Site 31HK149 was located 600 m east of Ray Road and 1800 m south of Manchester Road. Surface collected was one prehistoric sherd. No subsurface testing was done and no additional testing was recommended (Loftfield 1979:G-73). This site was probably entirely collected.

31HK150

Site 31HK150 was located 1900 m south of Manchester Road and 750 m east of the curve in Ray Road. Surface collected were one Savannah River projectile point base, 10 biface fragments, one core scraper, one prehistoric sherd, and 118 flakes. No subsurface testing was done although additional testing was recommended (Loftfield 1979:G-73). This site may have been subsequently recorded as 31HK447 in a slightly different place.

31HK151

Site 31HK151 was located 1900 m south of Manchester Road and 825 m east of the curve in Ray Road. Surface collected were two Kirk projectile point fragments, two Savannah River projectile point fragments, one quarry blade, and 11 flakes. No subsurface testing was done, but additional testing was recommended (Loftfield 1979:G-74). This site may have been entirely collected. It is also possible that the site is part of Loftfield's 31HK150 which was subsequently recorded as 31HK447 in a slightly different place.

31HK152

Site 31HK152 was located 1100 m east of Ray Road and 1600 m south of Manchester Road. Surface collected were one possible Clarksville projectile point, one biface fragment, three prehistoric sherds, and 12 flakes. No subsurface testing was done and no additional work was recommended (Loftfield 1979:G-74). This site may have been entirely collected.

31HK153

Site 31HK153 was located 960 m east of Ray Road and 1560 m south of Manchester Road. Surface collected were one perforator, seven prehistoric sherds, and 26 flakes. No subsurface testing was done and no additional work was recommended (Loftfield 1979:G-74). This site may have been entirely collected.

31HK155

Site 31HK155 was located 1350 m south of Manchester Road and 1200 m east of Ray Road. Surface collected were two historic sherds and six flakes. No subsurface testing was performed and no additional work was recommended (Loftfield 1979:G-75). This site may have been entirely collected.

31HK163

Site 31HK163 was located about 1250 m east of Ray Road and 1050 m south of Manchester Road. Surface collected were one Morrow Mountain projectile point, one Caraway projectile point, and 220 flakes. No subsurface testing was done, although additional testing was recommended (Loftfield 1979:G-76). This site may be part of 31HK162 which was revisited during this survey.

31HK167

Site 31HK167 was located 1350 m south of Manchester Road and 650 m east of Ray Road. Surface collected were one scraper, one retouched flake, and four flakes. No subsurface testing was done and no additional work was recommended (Loftfield 1979:G-77). This site may have been entirely collected.

31HK168

Site 31HK168 was located about 1300 m south of Manchester Road and 800 m east of Ray Road. Surface collected were one biface tool, three biface fragments, and 102 flakes. No subsurface testing was conducted although additional work was recommended (Loftfield 1979:G-77). This site may have been covered with colluvial soils. Given the condition of the sites in the project area, it is highly unlikely that shovel testing could have located the site.

31HK169

Site 31HK169 was located 1250 m south of Manchester Road and 850 m east of Ray Road. Surface collected were one Yadkin projectile point, two bifaces, one retouched flake, and 69 flakes. No subsurface testing was done although additional testing was recommended (Loftfield 1979:G-78).

This site may have been entirely collected.

31HK171

Site 31HK171 was located 750 m south of Manchester Road and 1200 m east of Ray Road. Surface collected were one Savannah River projectile point, one Guilford projectile point, one biface fragment, and 58 flakes. No subsurface testing was done although additional testing was recommended (Loftfield 1979:G-78). This site may have been entirely collected or was subsequently recorded as 31HK501 in a slightly different location.

31HK172

Site 31HK172 was located 700 m south of Manchester Road and 1300 m east of Ray Road. Surface collected were one Guilford projectile point, one Savannah River projectile point, one blade fragment, two biface fragments, two Guilford projectile point bases, one preform, 11 unifacial scrapers, and 195 flakes. No subsurface testing was done although additional testing was recommended (Loftfield 1979:G-78). This site may be recorded as 31HK502 in a slightly different location.

31HK174

Site 31HK174 was located 550 m south of Manchester Road and 1500 m east of Ray Road. Surface collected were 12 flakes. No subsurface testing was done and no additional testing was recommended (Loftfield 1979:G-79). This site may have been entirely collected.

CONCLUSIONS

Introduction

As a result of the intensive survey of the 557.5 ha Sicily Drop Zone at Fort Bragg, 40 archaeological sites and 85 isolated occurrences were revisited or identified. While Table 4 lists those sites currently identified, Table 16 correlates the current sites with Loftfield's original findings. Of the resources, four sites (31HK89, 31HK118, 31HK125, and 31HK435) are recommended as potentially eligible for inclusion on the National Register of Historic Places. This drop zone yielded a site density of 7.2 sites every km², if only the archaeological sites are taken into account and occurrences are excluded. If all of the archaeological resources identified on the tract are considered, the site density increases to 22.4 sites every km². This is the highest density found thus far on Fort Bragg. The average site density which Loftfield (1979) estimated for all of Fort Bragg was 10 sites every km² while Abbott et al. (1995:35) estimates that for the general area the average site occurrence is 11.3 sites every km². The previous highest density at Fort Bragg had been found at the Northern Training area where Braley (1989) identified 17 sites every km².

Table 16.
Current Status of Sites Identified by Loftfield (all sites are 31HK)

Site #	Current Status	Site #	Current Status	Site #	Current Status
78	NE - occurrence only	103	NE	151	NE - not relocated
79	NE - occurrence only	104	NE	152	NE - not relocated
80	NE	105	NE - occurrence only	153	NE - not relocated
81	NE	106	NE - occurrence only	154	NE
82	NE - not relocated	107	NE	155	NE - not relocated
83	NE - not relocated	108	NE - not relocated	156	NE - occurrence only
84	NE - occurrence only	109	NE	157	NE - occurrence only
85	NE - not relocated	110	NE - occurrence only	158	NE - occurrence only
86	NE - not relocated	111	NE - not relocated	159	NE
87	NE - occurrence only	112	incorporated in 31HK109	161	NE
88	NE - occurrence only	113	NE - occurrence only	162	NE
89	potentially eligible	114	NE - occurrence only	163	NE - not relocated
90	original site part of 31HK89, number reassigned	115	NE	164	NE - occurrence only
		116	NE - occurrence only	165	NE - occurrence only
		117	NE - occurrence only	166	NE
91	NE - occurrence only	118	potentially eligible	167	NE - not relocated
92	NE - occurrence only	119	NE - not relocated	168	NE - not relocated
93	NE - occurrence only	120	NE - not relocated	169	NE - not relocated
94	NE	124	NE	170	NE
95	NE - not relocated	125	potentially eligible	171	NE - not relocated
96	NE	126	NE	172	NE - not relocated
97	NE - not relocated	127	NE - not relocated	173	NE
98	NE - not relocated	128	NE	174	NE - not relocated
99	NE	129	NE - occurrence only	175	NE - occurrence only
100	NE	148	NE	176	NE - occurrence only
101	NE - not relocated	149	NE - not relocated	177	NE - occurrence only
102	NE	150	NE - not relocated		

NE = not eligible

All of the archaeological sites and occurrences are prehistoric. However, one site (31HK445) yielded two fragments of manganese bottle glass which dates to the late nineteenth and early twentieth centuries. The vast majority of artifacts consisted of quartz and metavolcanic lithic debitage and tools while a small minority of artifacts consisted of prehistoric pottery. A total of 4,875 artifacts were collected from the 40 different archaeological sites and 184 artifacts from the 85 isolated occurrences.

Twenty-six sites are listed in Table 16 as "not relocated." These are sites, previously identified by Loftfield during the Coastal Zone Resources survey, which could not be found during the current study. Based on the best information available, these sites are not recoverable because they no longer exist. Consequently, they are all recommended as not eligible for inclusion on the National Register of Historic Places.

Issues discussed in these conclusions include site attrition, site size and identification, prehistoric land use, site density, lithic resource use, artifacts, and general recommendations.

Site Attrition

The most striking aspect of this archaeological survey is the fact that most of the sites found by Loftfield in 1979 have fewer tools today. For instance, when Loftfield recorded site 31HK118 he collected 21 projectile points, five projectile point fragments, 17 knife/knife fragments, one knife/scraper, 11 bifaces/biface fragments, 28 scrapers, 13 blade/blade fragments, two cores, 14 retouched flakes, and one utilized stone. During the current survey we recovered one projectile point, four projectile point fragments, five biface fragments, one uniface fragment, one hammerstone, two scrapers, and four used flakes.

A more extreme example is 31HK89. Table 17 summarizes the data from Loftfield's survey and the current survey. It is interesting to note in addition to no tools being found during the current survey of 31HK89, debitage is even less common than found by Loftfield. While this may be a result of different collection techniques, it is possible that some of the more serious collectors are taking even the debitage at these sites. For a number of years in neighboring South Carolina, Charles (1981) has been recording collectors' artifacts. He notes that:

> [m]any years ago most collectors picked up only unbroken artifacts. Today many are collecting the stone chips and small ceramic sherds (Charles 1981:1).

Although there are clearly other, just as threatening, destructive forces (such as erosion or deflation) collectors have reduced many of these sites to thin scatters of debitage. Charles visited a site in Aiken County, South Carolina that he was told by a collector:

> was a great site. Upon walking over the site, I discovered so few artifacts that had I been doing a survey, I would have recorded it as a very thin lithic scatter. The reason for this scarcity of artifacts is apparent: collectors have picked up everything. They have bags containing many thousands of flakes. Sifting through some of these bags reveals dozens of

Table 17.
Data from Loftfield's and Chicora's survey of 31HK89

Artifact type	Loftfield	Chicora
Projectile points/fragments	9	0
Blades/fragments	3	0
Knives	4	0
Bifaces/fragments	6	0
Scrapers	1	0
Choppers	1	0
Utilized flakes	1	0
Debitage	451	168
Quartz cobbles	0	1
Pottery	9	0
Fire cracked rock	0	23
Bone	18	0
Total	503	192

utilized flakes, microblades, and scrapers (Charles 1981:1).

The Sicily Drop Zone, like the other drop zones at Fort Bragg, is well known for its richness of prehistoric artifacts. While perhaps no richer than most other tracts at Fort Bragg, artifacts are easily found because of the excellent surface visibility and the elements which exposed new artifacts continually. The drop zone has been collected for many years, and although attempts are made to discourage collecting, people still pick up the artifacts (as observed during our survey), perhaps sometimes including the debitage and prehistoric pottery.

Table 18 presents a list of revisited sites giving a comparison of the types of artifacts found by Loftfield (1979) and those found in the current survey. Clearly, there has been a great deal of collection at these sites, which has probably reduced good sites to little more than thin lithic scatters.

Table 18.
Artifact comparisons from revisited sites

Site	% of tools in total collection		% of diagnostic lithics in total collection	
	Loftfield	Chicora	Loftfield	Chicora
31HK80	2.7	0.0	1.3	0.0
31HK81	0.0	0.0	0.0	0.0
31HK89	5.0	0.0	1.8	0.0
31HK94	8.1	3.4	2.0	0.0
31HK96	9.6	1.4	3.2	1.4
31HK99	16.0	0.9	5.3	0.0
31HK100	10.2	0.7	6.2	0.7
31HK102	4.8	0.0	2.4	0.0
31HK103	7.0	0.0	2.1	0.0
31HK104	100.0*	0.0	100.0*	0.0
31HK107	1.4	0.0	0.0	0.0
31HK109	5.1	1.7	5.1	1.7
31HK115	85.7	0.0	28.7	0.0
31HK118	6.8	1.0	1.3	0.2
31HK124	1.2	1.3	0.0	0.0
31HK125	33.3	1.4	0.0	0.0
31HK126	11.1	3.1	7.4	0.0
31HK128	3.9	0.0	1.3	0.0
31HK148	6.7	1.2	3.3	1.2
31HK154	7.8	5.5	1.3	0.0
31HK159	5.3	5.3	0.0	0.0
31HK161	25.0	1.0	0.0	1.0
31HK162	5.1	0.0	1.5	0.0
31HK166	0.0	0.0	0.0	0.0
31HK170	6.7	2.3	1.7	0.0
31HK173	6.8	4.3	1.1	0.0

*=isolated find; other very large percentages are the result of small collections.

Erosion and deflation are other very destructive forces to archaeological sites on the drop zone. Mr. John Ray, District Conservationist for Hoke and Cumberland Counties Soil Conservation District, estimates that on Sicily drop zone 211 t of soil per ha per year are eroding off through water erosion. In addition, he estimates that wind erosion may add another 81 t. If the drop zone was an undisturbed area, erosion would consist only of about 0.012 t of soil per year per ha (USDA 1980). Ray remembered that in the 1970s and 1980s when Sicily was completely grassless, the sand dune system (which still exists today) could be seen to move on a daily basis. He stated that Lakeland sands are not known as erosion tolerant soils which adds to the erosion problem (John Ray, personal communication 1995).

Since the drop zone was cleared about 45 years ago, approximately 2606 t of soil per ha are estimated to have eroded off the drop zone through both wind and water erosion. According to Ray, each 1,000 t equals 10 cm of soil which for Sicily translates into 58.5 cm of soil per acre on the average over the 45 year period. There may be much less erosion in some areas and much more in others. For instance, water erosion affects sideslopes more, whereas wind erosion is more destructive on hilltops and upland flats. This clearly explains the test unit profiles previously discussed which contain Lakeland soil colors and textures typically found at 130 cm below surface at some sites.

The combination of erosion/deflation which exposes these artifacts and their subsequent collection on these drop zones has severely damaged what might have been a very valuable data base. For instance, since probably all of these sites have been collected in the past, examining the ratio of debitage to tools to determine site function was determined to be inaccurate. Statements made in this report regarding the functions of the various

Table 19.
Artifact density (sites listed by increasing size)

Site Number	Components	Topography	Size (m^2)	Density
31HK442	Lithic	knoll	52	0.19
31HK125	Lithic	upland flats	56	1.37
31HK128	Yadkin (Middle Woodland)	upland slope	68	0.57
31HK443	Lithic	upland flats	96	0.15
31HK80	Lithic	drainage sideslope	160	0.17
31HK447	Lithic	upland slope	136	0.11
31HK102	Lithic	drainage sideslope	224	0.30
31HK126	Lithic	drainage sideslope	240	0.40
31HK103	Lithic	drainage sideslope	316	0.07
31HK440	Lithic	upland slope	396	0.08
31HK166	Lithic	knoll	492	0.08
31HK508	Lithic	knoll	496	0.03
31HK100	Lake Mohave (Middle Archaic)	upland slope	640	0.23
31HK170	Lithic	small ridge nose in upland flats	764	0.06
31HK159	Lithic	drainage sideslope	796	0.02
31HK107	Lithic	upland slope	844	0.04
31HK441	Lithic	upland flats	852	0.19
31HK104	Lithic	upland slope	864	0.02
31HK437	Lithic	upland slope	880	0.04
31HK154	Lithic	ridge nose	896	0.02
31HK162	Lithic	drainage sideslope	948	0.02
31HK81	Lithic	upland slope	960	0.07
31HK438	Savannah River, UID pottery (Late Archaic/Early Woodland)	upland slope	968	0.05
31HK446	Lithic	ridge nose	1036	0.03
31HK94	Lithic	ridge nose	1144	0.02
31HK445	Lithic	drainage sideslope	1316	0.006
31HK96	Triangular point (Woodland)	ridge nose	1796	0.04
31HK115	Yadkin (Middle Woodland)	gentle upland slope	2644	0.07
31HK434	Morrow Mountain (Middle Archaic)	knoll	2984	0.02
31HK161	Halifax (Middle Archaic) Hanover (Middle Woodland)	ridge nose	3600	0.03
31HK436	Lithic	level area of upland slope	3936	0.02
31HK173	Lithic	drainage sideslope	4632	0.01
31HK124	Lithic	upland flats	4680	0.02
31HK148	Badin (Early Woodland)	ridge nose	6534	0.01
31HK435	Hanover (Middle Woodland)	knoll	7584	0.02
31HK444	Yadkin? (Middle Woodland)	ridge nose	8384	0.02
31HK109	UID pottery (Woodland)	upland slope	8480	0.007
31HK89	Lithic	ridge nose	11488	0.02
31HK99	Lithic	ridge nose	19920	0.02
31HK118	Palmer (Early Archaic) Caraway (Late Woodland) UID pottery (Woodland)	large knoll	37575	0.05

sites revisited and recorded are, at best, tenuous. While it might be possible to use Loftfield's reconnaissance data to determine temporal placement and site function of previously recorded sites, we have found sufficient problems in site locations and relocating previously recorded sites to call into question any such efforts. Much has changed in the 16 years since Loftfield conducted his study. There is no guarantee that the site we, for instance, recorded as 31HK115 is actually his 31HK115. Site correlations represent only our best guesses.

Other damage to the archaeological sites include the initial clear cutting of the drop zone, road grading, vehicle and foot traffic, as well as the drop zone's use as a firing range in the 1940s and 1950s. Ordinance is still present and shrapnel can be found almost everywhere, although it is particularly prevalent in the northern half of the drop zone. Shrapnel, in fact, was found in some shovel tests to depths of at least 40 cm. We presume this is primarily the result of its explosion and impact. Since ordinance has been dropped on the tract, the decision of whether or not to point provenience surface artifacts in future investigations should be made with this in mind.

The problems with the current data sets must be presented before offering any conclusions about the survey. Some data, such as site location, are valid since there has probably been little lateral movement of the artifacts on the drop zone. But statements regarding the contents of these sites and how they reflect site function should be taken with caution.

Site Size and Identification

Sites at Sicily Drop Zone ranged in size from just small scatters of debitage in a 10 m area to large scatters of remains across several transects. These sites ranged from 52 m^2 to 37,575 m^2 (Table 19). Given the condition that these sites are presently in, most never could have been found if the area had no surface visibility. The only sites that would have likely been located with shovel tests on 30 m interval transects given their size and subsurface content are 31HK89, 31HK118, and 31HK435. These are three of the four sites recommended as potentially eligible for the National Register. The remaining site, 31HK125, is very small (approximately 56 m^2) and it would likely never have been found. Site 31HK125 falls within the range of the bulk of the sites identified, which were 1,000 m^2 or smaller (n=23; or 57.5%). Unfortunately, it is this majority that would typically be missed on 30 m transects if the area had no surface visibility. It might, however, be argued that most sites of this size might not yield significant data beyond locational information for settlement studies.

Let's imagine that Sicily was wooded with dense undergrowth and its sites had suffered little damage. Using 30 m interval transects and shovel tests across the entire 557.5 ha drop zone, at most only 17 archaeological sites (or 4 sites per km^2) would likely have been identified — a number thatwould not have impressed anyone as being high density. Figure 67 illustrates what might have been found in this scenario. Basically, it could be concluded that ridge noses were important areas for settlement and perhaps not much more.

It is unlikely that new survey methods will ever be able to locate very small sites in overgrown areas, and it is probably not very important that we try to find a way to do this from an administrative or cultural resource management perspective. The vast majority of these sites are probably not significant resources in the context of the National Register of Historic Places. Yet the information that such sites provide allows a much more complete view of prehistoric settlement and land use and is essential in our quest to understand how prehistoric populations interacted with and affected the landscape.

Had the drop zone had not been a target for collectors, the research data that it could have contributed toward a better understanding of changing land use and land use between larger identifiable sites would almost certainly have been invaluable. Opportunities to explore settlement patterns and site types on this scale on rare. Nonetheless, the identification of sites that would have otherwise gone unrecorded provides a picture of how the prehistoric inhabitants used the entirety of the drop zone.

Prehistoric Land Use

Since few diagnostic artifacts were recovered during this survey to allow for a valid examination of changing land use, we chose to combine data from the current survey with Loftfield's data to arrive at a more accurate picture.

Six sites with Paleoindian diagnostic projectile points were located in various topographic contexts including upland flats, knolls, upland slopes, and ridge noses, providing no clear pattern of land use. However, all specimens were recovered from the southern two-thirds of the drop zone (Figure 68). Of the 151 sites and occurrences recorded by Loftfield and the current survey, 4% produced Paleoindian projectile points. The average distance to water is 327 m.

Sites with Early Archaic components (n=7; or 4.6% of total sites) were also found in diverse settings including knolls, upland flats, ridge noses, and drainage sideslopes. As observed by Braley (1990:7), this suggests that population levels remained fairly constant from the Paleoindian to Early Archaic Period. Most of these sites are concentrated near a single drainage in the east central portion of the drop zone, suggesting that it contained the qualities desirable by the Early Archaic peoples (Figure 69). The average distance to water is 290 m. Although the sample size is small, this may suggest a movement to use land closer to water sources. Middle Archaic occupation is much more common with 22 sites and occurrences (or 14.6% of total sites) producing this component. This suggests a tremendous increase in the Native American population or an increased use of the area by outside groups. Again, the topographic settings are diverse, although the sites cluster in two different areas of the drop zone: a large broad ridge nose between two intermittent streams and adjacent to a stream in the northern portion of the tract. There is also a small V shaped ridge nose that contained Middle Archaic sites (Figure 70). The average distance to water is 173 m. This suggests a continuing trend in the use of areas adjacent to creeks and springheads.

Although the climate is believed to have changed a great deal during the Late Archaic Period (Delcourt and Delcourt 1987), there does not appear to be a significant amount of change in the locations of archaeological sites from the Middle to Late Archaic periods. Late Archaic sites (n=23; or 15.2%) are located in the same geographic areas (Figure 71) with the average distance to water remaining rather constant at 189 m. Pollen records show that the amount of pine pollen increased, equal to that of oak, indicating that pines spread throughout the Coastal Plain during the Late Archaic Period (Braley 1990; Delcourt and Delcourt 1987). In addition, alluviation rates stabilize during this period (Segovia 1985) which suggests that there was an increase in ground cover and the climate may have approximated modern conditions. The increase in pine and the resulting decrease in the nut mast probably had an effect on prehistoric land use in general, although no evidence was identified during the current survey. It is likely that there were variables more important than micro-environment in the drop zone area that affected where people chose to work and live.

Woodland sites, which consist of a large quantity of sites/occurrences (n=30; or 19.9% of total), are found in diverse areas and are found, on the average, further away from water than Middle and Late Archaic sites (Figure 72). The average distance to water is 274 m. Since large Woodland/Mississippian Period sites are more often found adjacent to rivers, this land usage probably reflects inter-riverine hunting and gathering forays rather than habitations. The sparsity of pottery on the drop zone also supports this conclusion.

It is interesting to note that there are landforms on the survey tract that do not appear to have been used at all during the prehistoric period. This is true of a large northeast ridge nose located in the southeastern quadrant of the tract (see Figures 67 through 72). The reason for this is unclear. By looking only at the gross topography it appears to be a desirable place to use — there are springheads feeding intermittent streams flowing into Jumping Run Creek as well as relatively level areas for habitation. The failure to use this area may reflect a micro-environmental variable not

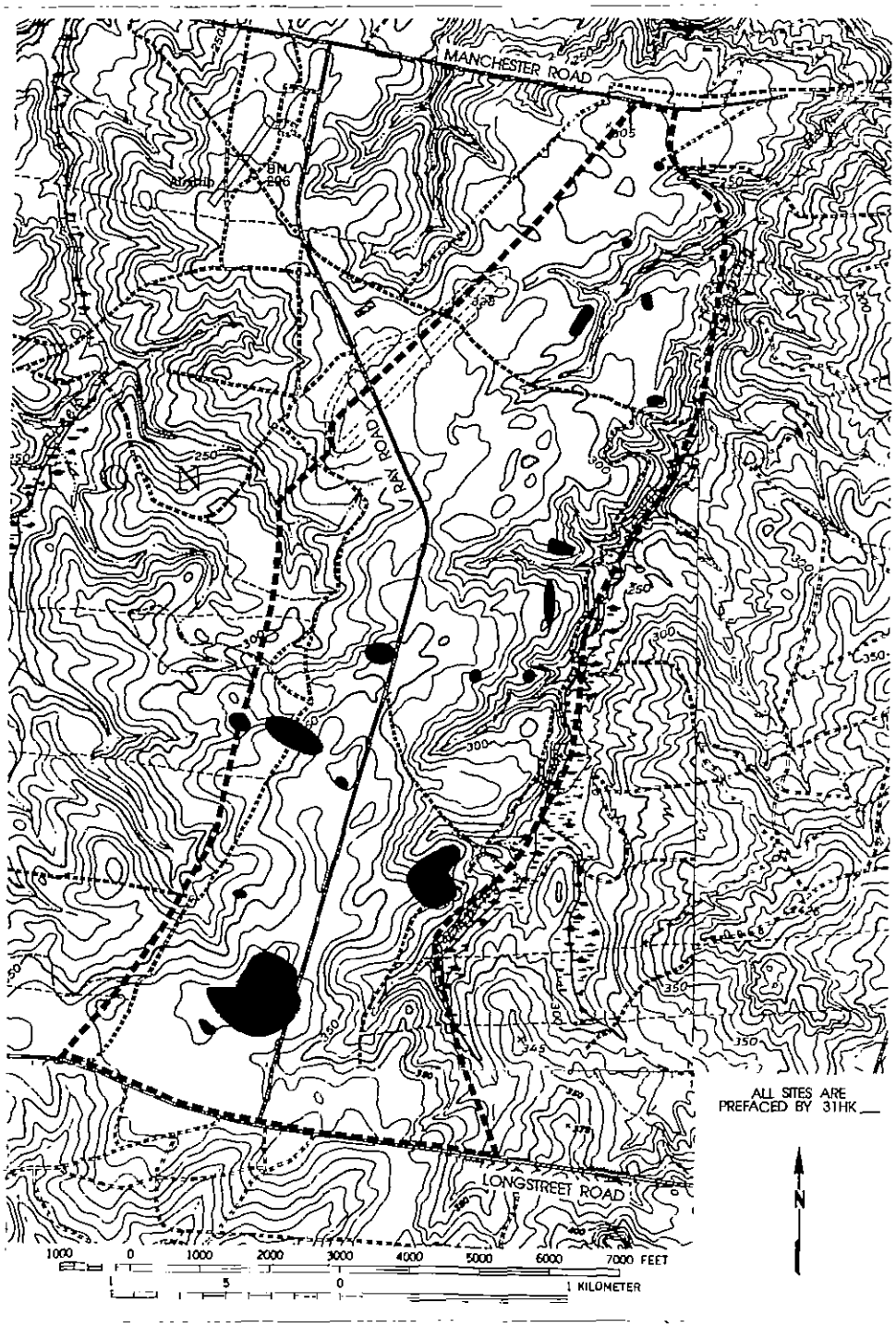

Figure 67. Location of sites 1000 m² or greater on the Sicily Drop Zone.

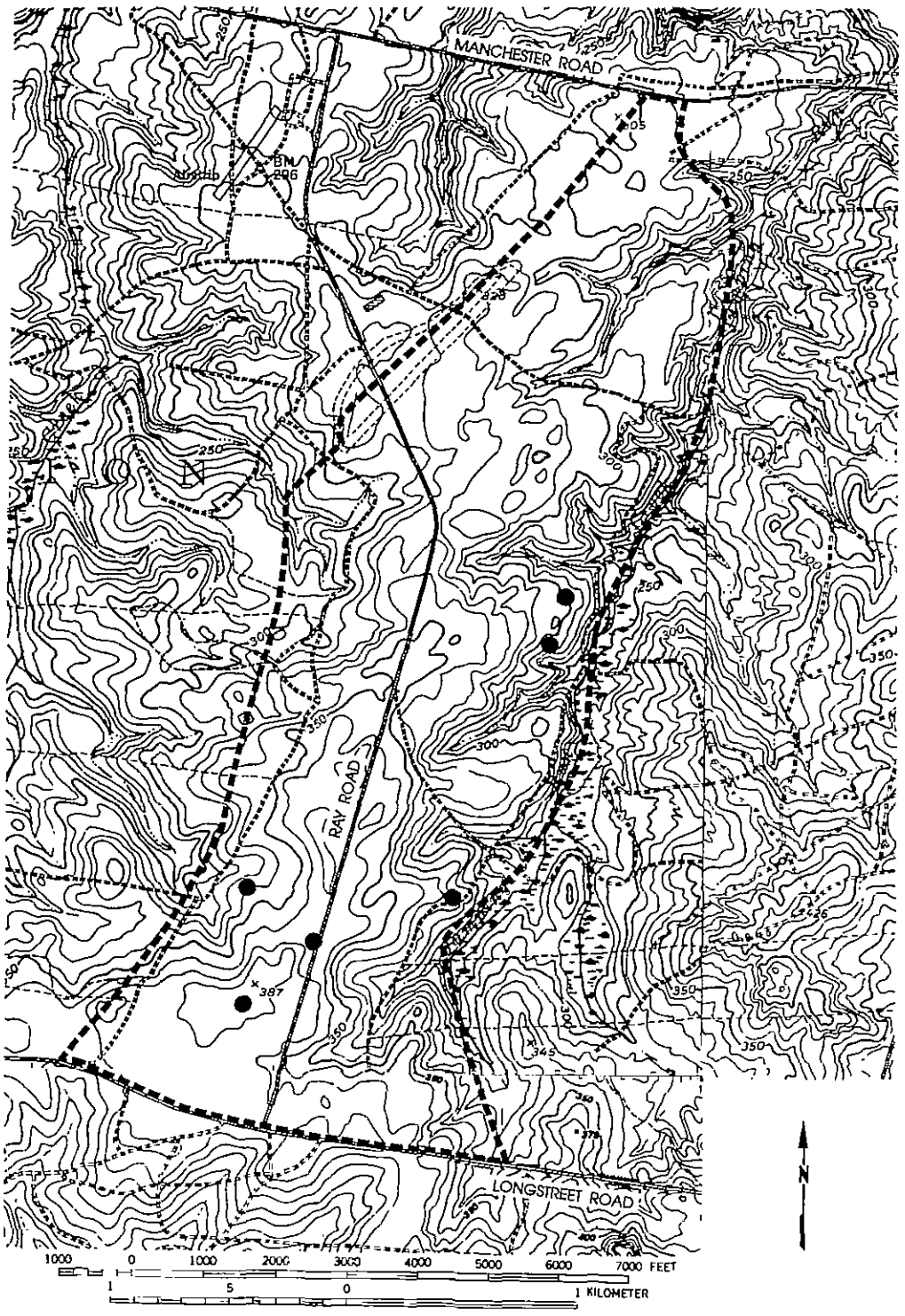

Figure 68. Location of sites and occurrences with Paleoindian diagnostic artifacts.

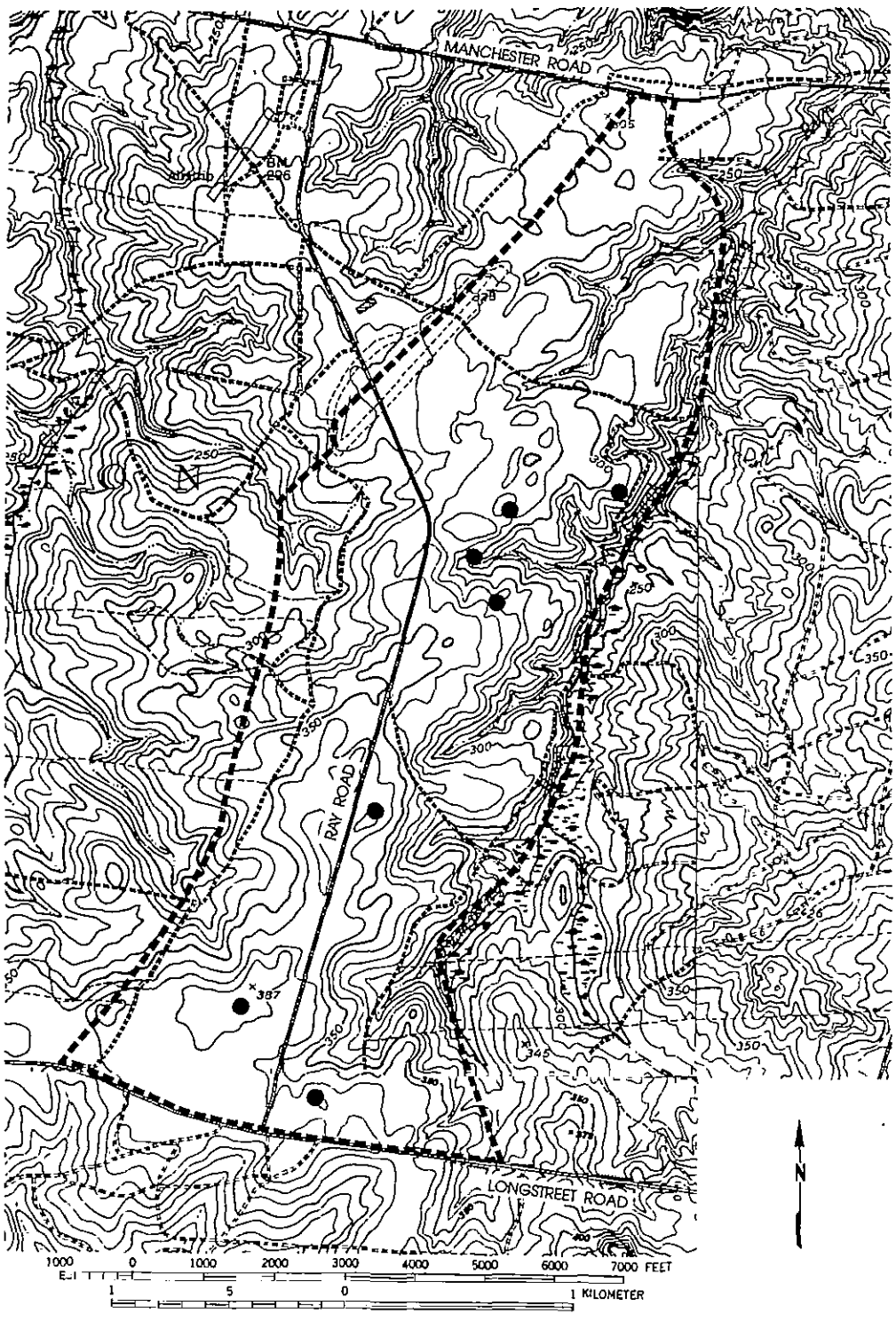

Figure 69. Location of sites and occurrences with Early Archaic diagnostic artifacts.

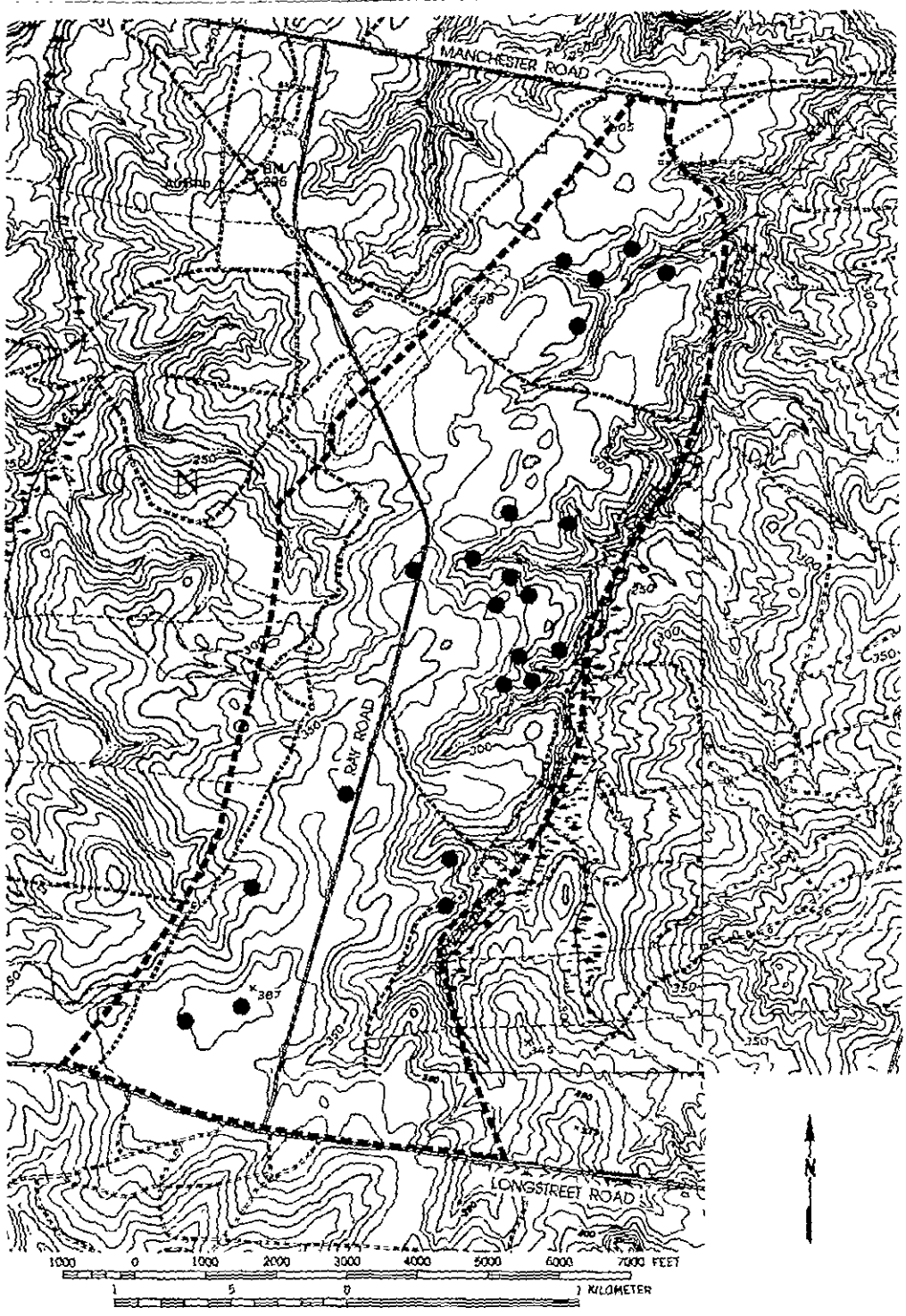

Figure 70. Location of sites and occurrences with Middle Archaic diagnostic artifacts.

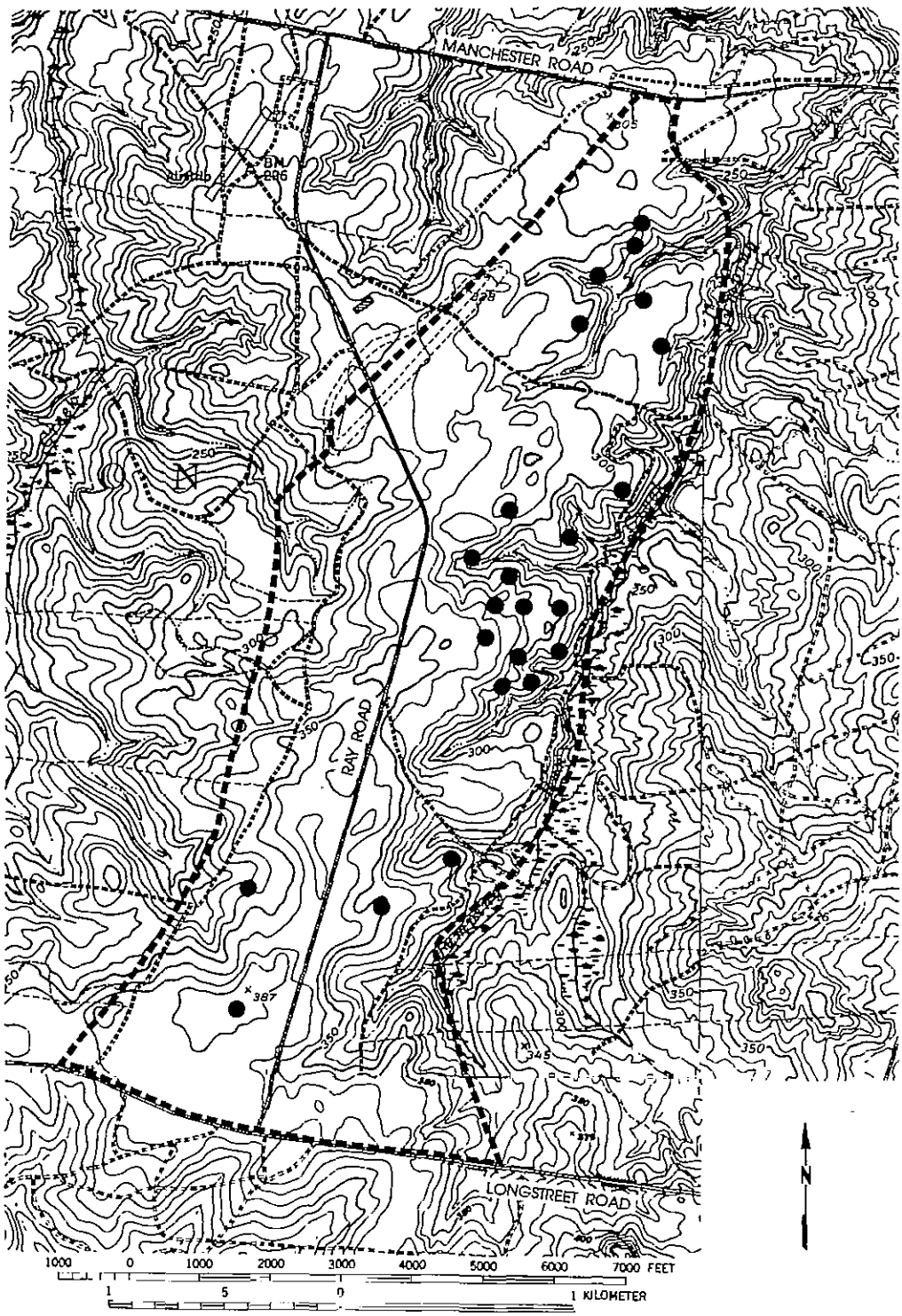

Figure 71. Location of sites and occurrences with Late Archaic diagnostic artifacts.

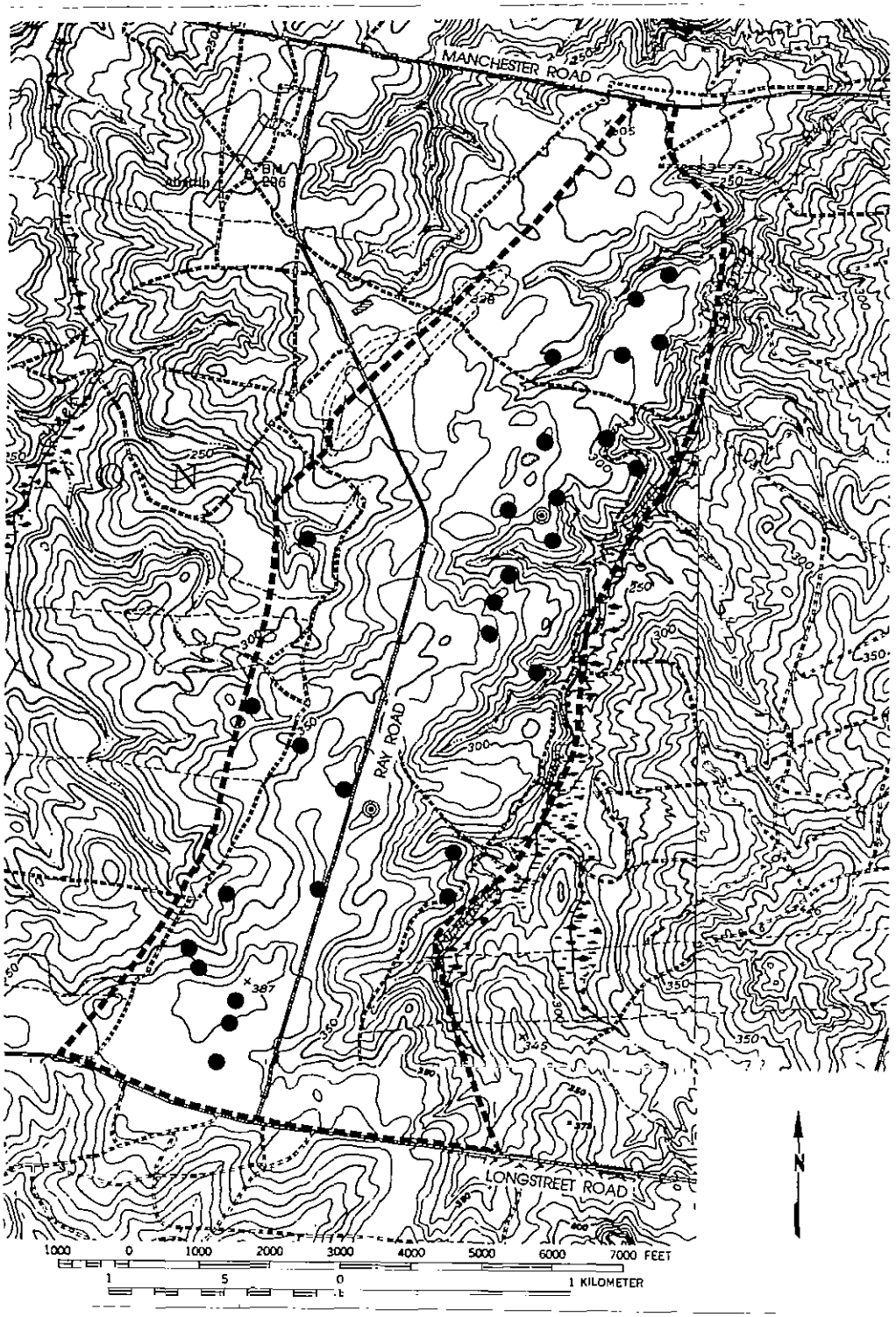

Figure 72. Location of sites and occurrences with Woodland diagnostic artifacts.

recognized in this limited study. It seems reasonable to expect that occupation is the result of a combination of favorable environmental factors, landform orientation, and micro-topography. The most comparable landform elsewhere on the tract is the north oriented broad ridge nose in the northern third of the tract. Here, sites are found on the very edge of the landform overlooking drainages. It may be that on the more southern landform, there were no adequate micro landforms suitable for use. For instance, particularly on sloped areas of the drop zone, small artifact scatters were often found on small level areas not shown on topographic maps. Of course, this landform in general had poor surface visibility and had to be largely shovel tested. It is likely, given the condition of most sites in the drop zone, that shovel testing may not have been able to locate any remains that might have been present.

Table 20.
Slope face directions for sites associated with Deep and Jumping Run Creek

	Deep Creek		Jumping Run Creek		Total	
Direction	#	%	#	%	#	%
N	0	0.0	4	15.4	4	11.8
NE	0	0.0	3	11.5	3	8.8
E	0	0.0	10	38.5	10	29.4
SE	0	0.0	8	30.8	8	23.5
S	0	0.0	1	3.8	1	2.9
SW	0	0.0	0	0.0	0	0.0
W	2	33.3	0	0.0	2	5.9
NW	6	66.7	0	0.0	6	17.6

Sites associated with the Deep Creek drainage system (n=6) which was located on the western portion of the tract, were usually found on a northwest slope face (n=4) with the remaining sites (n=2) on the west slope face. The majority of sites (n=26), however, were associated with the Jumping Run Creek which bordered the eastern portion of the tract. Here, sites were usually found on the east or southeast slope face (Table 20). Sites with no slope (n=6) accounted for 15% of all sites. By looking at the slope face direction of all sites, most sites are located on the east or southeast slope. This is interesting since Loftfield's (1979) reconnaissance found that most sites were located with an east, north, and northeast slope face. He also noted that the largest extended occupation sites were located on north or northeasterly facing slopes. It is also interesting to note that few sites are located on west slopes.

Significantly, the soil survey (Hudson 1984) reports the prevailing winds are from the southwest. According to Brown and Morgan (1983:24) there are a number of factors to consider when locating a camp site. For instance, southern exposures provide the longest lasting heat and light and, of course, locating a camp on the east side of a ridge provides protection from the wind and blowing rain. This also provides quicker warmth during the morning hours.

In general, the prehistoric people used diverse topographic settings in the drop zone throughout time. However, there were areas that were more intensively used and consist of a broad ridge nose in the east central portion of the tract north up to and surrounding the Y-shaped drainage, the V-shaped ridge nose in the southeastern portion of the tract, and the large knoll that contains 31HK118.

Site Density and Function

Table 19 provides a list of the archaeological sites, their components, size in m^2, and the density of artifacts per m^2 listed in order of size. Sassaman et al. (1990) suggest that the density of artifacts at prehistoric sites is a useful measure of the relative intensity of material discard at a site stating that the amount of discard is assumed to be proportional to the "cumulative duration of site occupation, and/or the total number of site occupants, and/or the intensity of activities from which discarded debris was

generated" (Sassaman et al. 1990:223). Lithic tool manufacture, however, generates a large volume of debris which creates a bias on measures of occupation duration/intensity and Sassaman and his colleagues recommend calculating density for total assemblages and for artifacts other than debitage. Unfortunately, too few artifacts other than debitage are present at these sites, due largely to collecting, so only density based only on the total assemblage could be calculated. They warn that artifact density should only be calculated for subsurface assemblages with an adequate sample size. None of these conditions exist at any of the sites encountered and both surface and subsurface assemblages are examined. Because of these problems, other types of site analysis such as tool to debitage ratio and assemblage diversity were determined to be inappropriate with the collection obtained during this survey.

An examination of Table 19 shows several things. First, the smaller sites (less than 1000 m^2) have a large range in artifact density from 0.02 to 1.37 artifacts per m^2. The mean density is 0.18 artifacts. This density is high when compared to sites greater than 1000 m^2 which range from 0.006 to 0.07 artifacts with a mean density is 0.03. In addition, examining this table reveals that usually it is the larger sites that contain diagnostic specimens. This is not surprising since they were likely used for more than just lithic reduction and for longer periods of time than most of the smaller sites. The function of small sites for lithic reduction is reflected in the high density of some of these sites. For instance, site 31HK125 which is only 56 m^2 has a density of 1.37. This small, but dense, lithic scatter produced almost exclusively metavolcanics of the same variety (porphorytic rhyolite), suggesting an intensive episode of reduction, perhaps from a large chunk of raw material. Small sites with rather sparse remains may reflect reduction of bifaces to projectile points rather than projectile points or bifaces from chunks of raw material such as may have happened at 31HK125.

Larger sites have a much smaller range of variation from the mean density. Large sites on sideslopes with small quantities of remains, such as 31HK109, may be the result of destructive forces such as erosion dispersing smaller sites. The densest large sites consisted of 31HK96, 31HK115, and 31HK118 which all contained Woodland components, perhaps reflecting a less mobile lifestyle and therefore longer-term use or multiple visits. Clearly, the density of 31HK118 is a result of continued use from the Paleoindian to the Late Woodland periods.

Lithic Resource Use

As mentioned in the description of site 31HK118, it appears that the occupants of the site (and the entire tract) used quartz more often than metavolcanic raw materials. Quartz in the form of river cobbles was locally available, probably to be found on the banks of Lower Little River and its larger tributaries. The closest metavolcanic outcrop is found about 16 km west of Fort Bragg (North Carolina Department of Conservation and Development 1958) with the Morrow Mountain quarry located about 97 km away. Quartz debitage consisted of 63.18% of the entire Sicily Drop Zone collection, while metavolcanic debitage consisted of 36.76%. Another 0.06% consisted of minor materials (i.e. jasper and siliceous chert).

Although metavolcanic debitage was in the minority, 76% of all of the projectile points were manufactured from metavolcanic material. Bifaces, biface fragments, and small projectile point fragments were also made more often out of metavolcanics (72%). This suggests that prehistoric occupants preferred to use metavolcanic material for tools which were intended to be curated. Unfortunately, this small collection of identifiable projectile points and point fragments did not allow for a reliable examination of changes in raw material preferences. However, Table 21 is provided which lists projectile point types and raw material.

Seven scrapers were recovered during the survey of the drop zone and a majority (n=6; or 85.7%) were manufactured from quartz. While some archaeologists may classify scrapers as curated tools, the use of locally available quartz suggests that either they were considered expedient tools or that quartz did not dull as quickly as

Table 21.
Projectile points and material from Sicily Drop Zone

Type	Metavolcanic	Quartz
Hardaway		1
Palmer	1	
Stanly	1	
Morrow Muntain I	1	
Halifax	1	1
Lake Mohave	1	
Guilford	4	
UID (poss. Guilford related)	3	
Savannah River Stemmed	2	
Yadkin (Large Triangular)	2	
Caraway	2	4
Thelma	1	
Total	19	6

metavolcanic material and was preferred for that reason.

No tools were manufactured from the minor materials such as jasper and siliceous chert. This probably indicates that tools made of this material were highly valued and curated (of course, given the small sample size, it might also indicate that these points are more valued by collectors or more easily spotted on the ground — pointing out, once again, the problems inherent in the use of the Sicily data).

Artifacts

A total of 25 projectile points, either whole or large enough fragments to be identifiable (see Figure 73 for a representative sample), were collected during the survey. As mentioned earlier, 76% of projectile points and bifaces were manufactured from metavolcanic material, which suggests a preference for this material in the manufacture of curated tools.

There were three projectile points that did not clearly fit any previously published description. These points are slender with a weak stem and all three are poorly flaked (Figure 73 illustrates these three specimens). In all cases, one side was more carefully chipped, while the reverse was more poorly flaked. Two of the three point have complete hafts, one of which slightly tapered with a square base. The second example is tapered with a rounded base. Measurement ranges consist of: length = 62-76 mm (estimated); blade length = 51-61 mm (estimated); blade width = 25.77-30.40 mm; haft width = 14.91-18.04 mm; thickness = 7.64-10.28 mm.

None of Oliver's (1981) descriptions of the varieties of Savannah River Stemmed points fit these points. Ward (1978:29, Plate II) found a morphologically similar point at White's Creek in Marlboro County, South Carolina which he classifies as Savannah River Stemmed. However, the point is somewhat larger than the three found at Sicily Drop Zone.[1] This point is consistent with the description that Oliver (1981:121-124) provides for the lanceolate variety of Savannah River Stemmed. However, the projectile points from Sicily Drop Zone do not fit this description. They do, however, fall into the length and width ranges for Guilford (Coe 1964), but the presence of a stem disqualifies them from being classified as Guilford. In addition, Coe (1964:43) describes Guilfords as being carefully chipped. The three specimens somewhat resemble Wauchope's (1966:141-143) medium to medium large stemmed narrow projectile points although they are slightly larger than his range. He describes them as medium to crudely executed with fairly large chips. Retouching is rare. He remarks that these points appear in the Archaic Period and date into the Early/Middle Woodland Period. While specimens are found throughout the southeast, he relates his specimens to North Carolina examples from the Guilford Focus and cites specimens illustrated by Coe (1952). Coe (1952:Figure 162) refers to these specimens as "associated but atypical" forms of Guilford.

Unfortunately, none of these three points occurred at sites recommended as potentially

[1] Although Ward provides no written measurements, they can be obtained from a scaled photograph. The point tip was broken off, but estimated lengths were obtained: length = 101.97 mm; blade length = 85.23 mm; blade width = 36.39 mm; haft width = 17.68 mm.

eligible for the National Register, and two of the three are isolated occurrences. The third point was found at a Badin pottery bearing site (31HK148) which suggests that they date to the Early Woodland Period. However, the site may be multicomponent.

Other artifacts consisted of pottery (Figure 77), unifaces, used flakes, scrapers (Figure 78, hammerstones, an anvil (Figure 78g), and a grinding stone (Figure 78f). The anvil indicates that some stone tools were perhaps manufactured using bipolar reduction. This method was probably used on the quartz river cobbles which tend to be relatively small.

Pottery consisted of a very small percentage (n=85 or 1.7%) of the entire Sicily Drop Zone collection. Obviously, given the small assemblages some difficulty was encountered even in distinquishing the types involved. Only one sherd was characterized as Badin, although the surface treatment was indistinct. This sherd exhibited a fine sand paste. It might just as easily been characterized as New River and the decision to call it Badin is based only on this types longer history in the literature and the dominance of other Piedmont types (i.e., Yadkin) in the collection.

The Yadkin collection consists of 18 specimens exhibiting cord-marking and two specimens with indistinct surface treatments. These materials are consistent with the Yadkin type description (Coe 1964:30-31) in all respects except that they contain a mix of both angular and sub-angular quartz inclusions rather than just "quartz that appeared to have been broken especially for tempering material" as originally reported. Ward (1983) suggests that Yadkin may exhibit greater variability than originally identified, based on his work in the White's Creek drainage of South Carolina's Inner Coastal Plain. Although even there he reports that all of the Yadkin materials exhibit "crushed quartz" with "angular edges" it seems that the variability he describes may include sub-angular, perhaps even rounded, tempering. Regardless, the collections clearly do not fit the description of Cape Fear (which mentions no crushed quartz inclusions). The Fort Bragg materials *might* have been typed as Mount Pleasant (Phelps 1981) or even the less well known Lenoir or Grifton series (Crawford 1966). All of these, however, were excluded as being too distant from the project area. The problem placing small collections, however, clearly suggests that the extant type descriptions are poorly conceived and offer tremendous overlap. Here, as in South Carolina, there is the need for the development of a type-variety system which might help clear some the current typological confusion. Until then, we (like Ward before us) have opted to use the Yadkin description and recognize that variability may be greater than originally anticipated.

The final identified assemblage consists of three Hanover Cord Marked, one Hanover Fabric Impressed, and one unidentifiable Hanover sherd. These materials are placed in the Hanover Series (South 1976) based on the quantity of clay or sherd tempering. This follows Phelps' (1983) suggestion to subsume the Carteret Series in the pre-existing Hanover descriptions. The collection, however, does not allow questions regarding this temper to be addressed. Specimens were identified where the temper clearly consisted of sherd fragments. Other specimens, however, appear to be tempered with grog — perhaps fragments of sun dried or otherwise unfired clay poorly mixed in the paste. This range of variation has not been adequately discussed on the North Carolina coast and is certainly worthy of additional research with larger collections.

Also present in the collection are 25 small (i.e., under 2.5 cm in diameter) unidentifiable sherds. No attempt has been made to type these materials because essential information on paste and surface treatment are difficult, or impossible, to obtain.

At least based on the current study some of the ceramic traditions, Badin and Yadkin, appear to have stronger ties to the Piedmont than they do to the Coastal Plain. Yet the Hanover materials are typically not found in the Piedmont and, at least on an intuitive basis, are nearly identical with materials observed from Onslow and Brunswick counties along the coast.

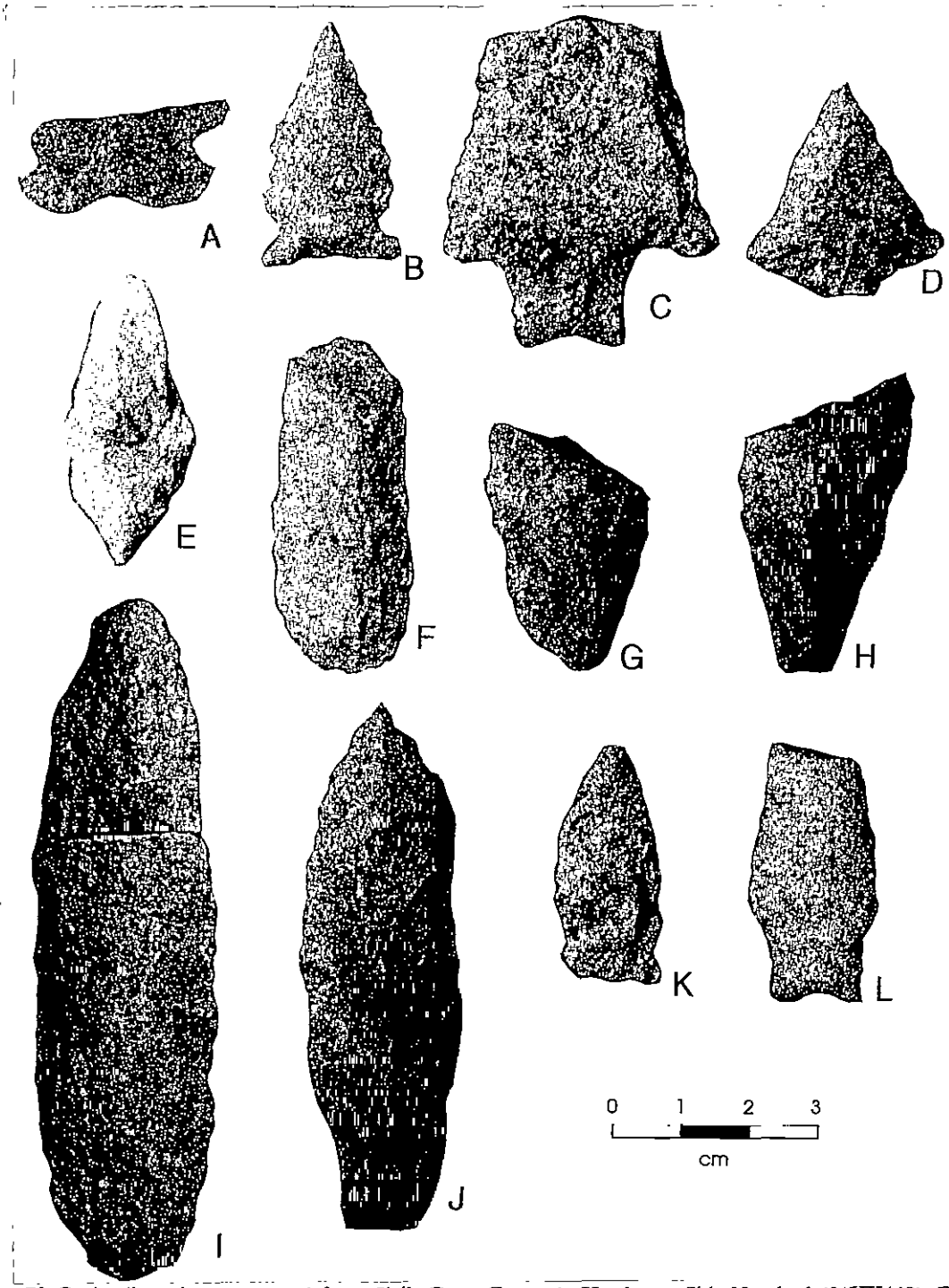

Figure 73. Projectile points recovered from Sicily Drop Zone. A, Hardaway Side-Notched (31HK449); B, Palmer Corner-Notched (31HK118); C, Stanly Stemmed (31HK444); D, Morrow Mountain I (31HK434); E, possible Lake Mohave (31HK100); F-J, Guilford Lanceolates (31HK175, 31HK463, 31HK463, 31HK444, 31HK463); K-L, Halifax Side-Notched (31HK90, 31HK161).

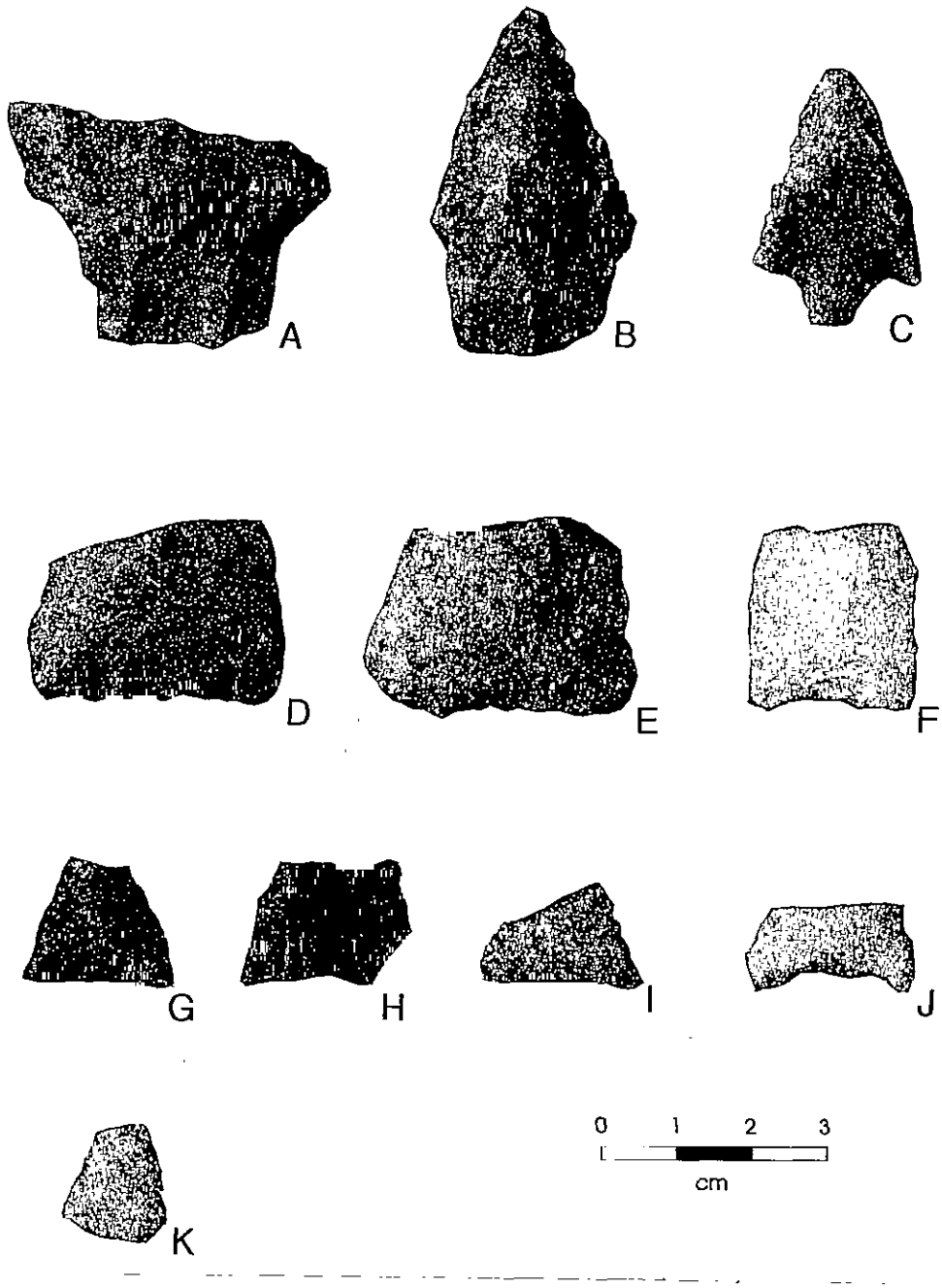

Figure 74. Projectile points recovered from Sicily Drop Zone. A, Savannah River Stemmed (31HK438); B, reworked Savannah River Stemmed (31HK462); C, Thelma (31HK434); D-E, large triangular points (possible Badin Crude Triangular points) (31HK444, 31HK435); F, Yadkin Triangular (31HK437); G-K, small triangular points (probable Caraway points) (31HK493, 31HK493, 31HH118, 31HK118, 31HK118).

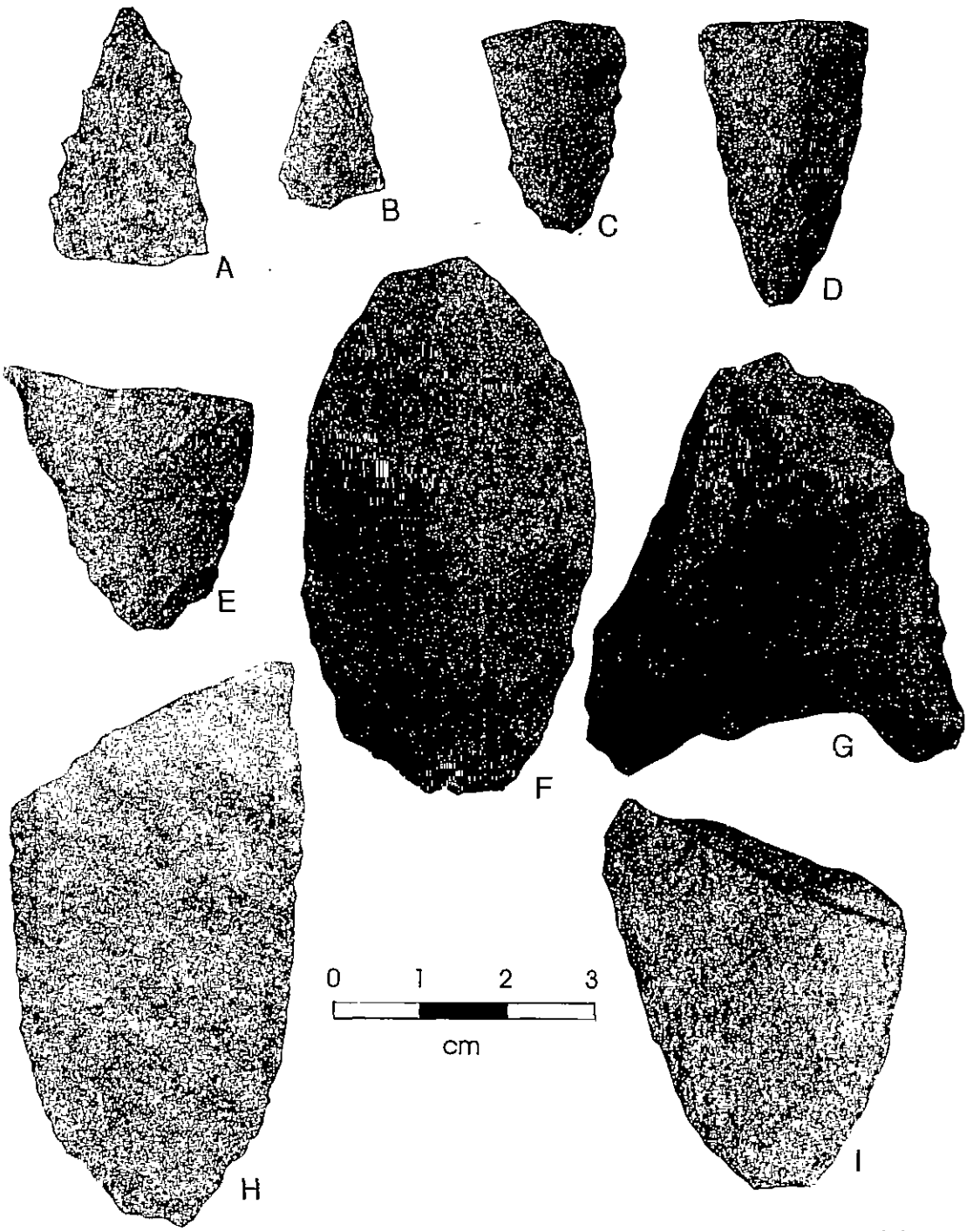

Figure 75. Bifaces and projectile point tips from the Sicily Drop Zone. A-B, probable point tips (31HK443, 31HK457), C-E, probable point bases (31HK99, 31HK124, 31HK94); F-I, bifaces (31HK118, 31HK435, 31HK177, 31HK99).

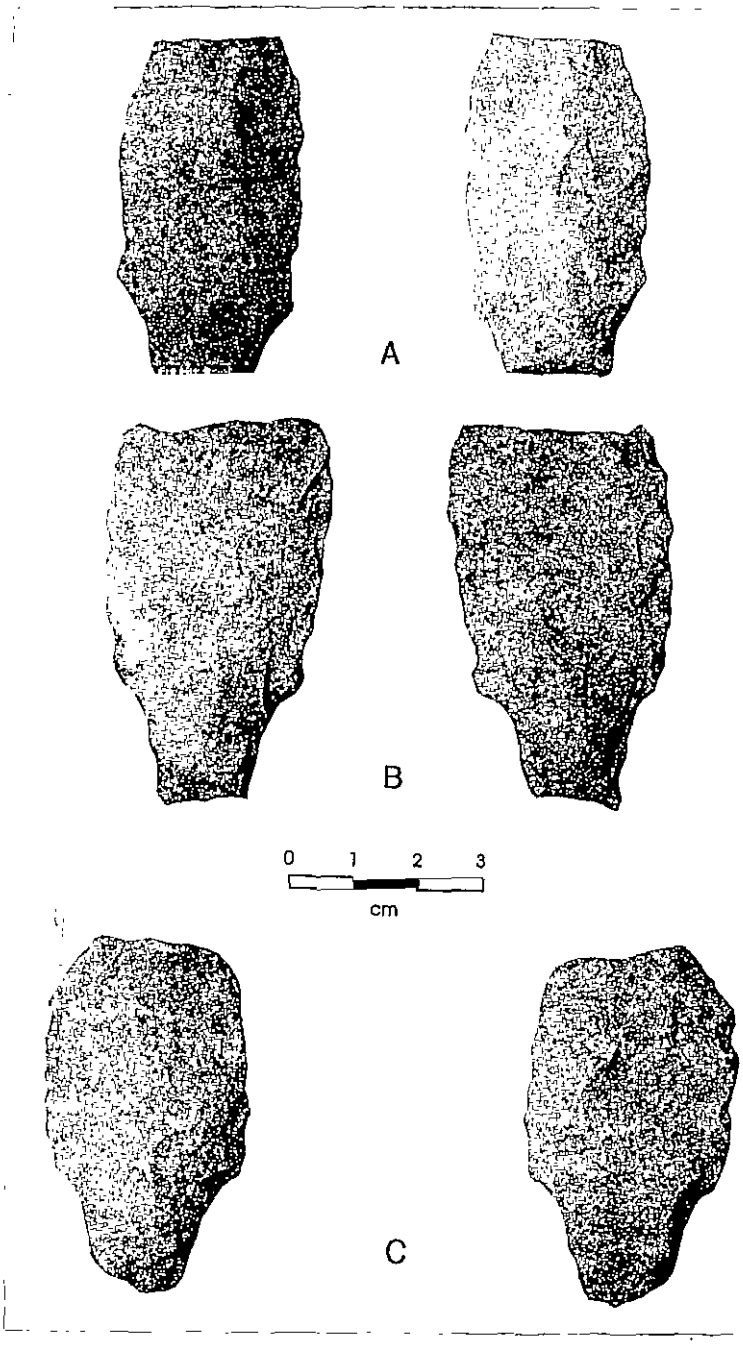

Figure 76. Slender, weak shouldered, stemmed projectile points from the Sicily Drop Zone (obverse and reverse illustrated). A, specimen from 31HK488; B, specimen from 31HK116; C, specimen from 31HK148.

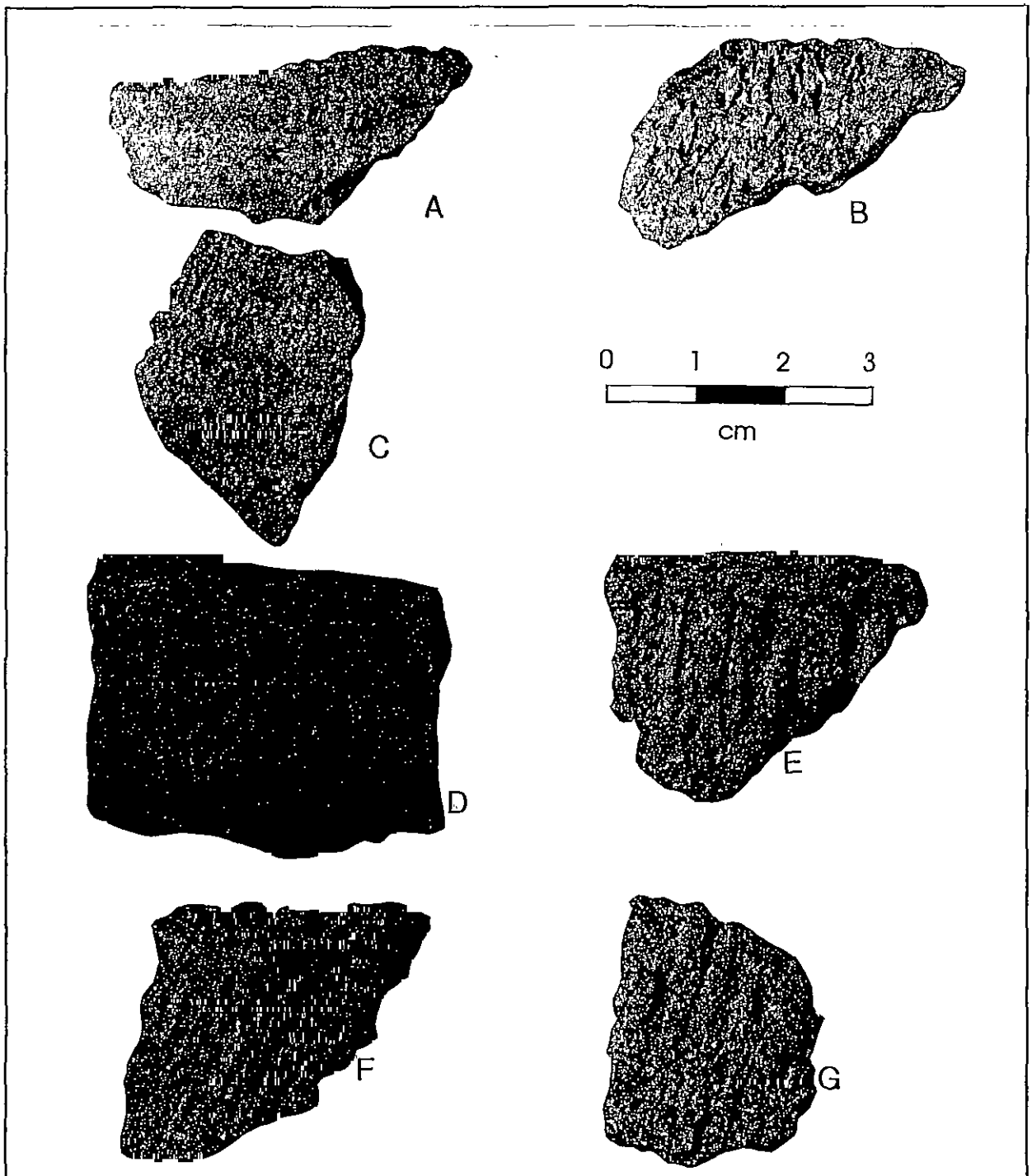

Figure 77. Pottery examples from the Sicily Drop Zone. A, Hanover Fabric-Impressed (31HK761), B, Hanover Cord-Marked (31HK761); C, Hanover Fabric-Impressed (31HK435); D-G, Yadkin Cord-Marked (31HK128).

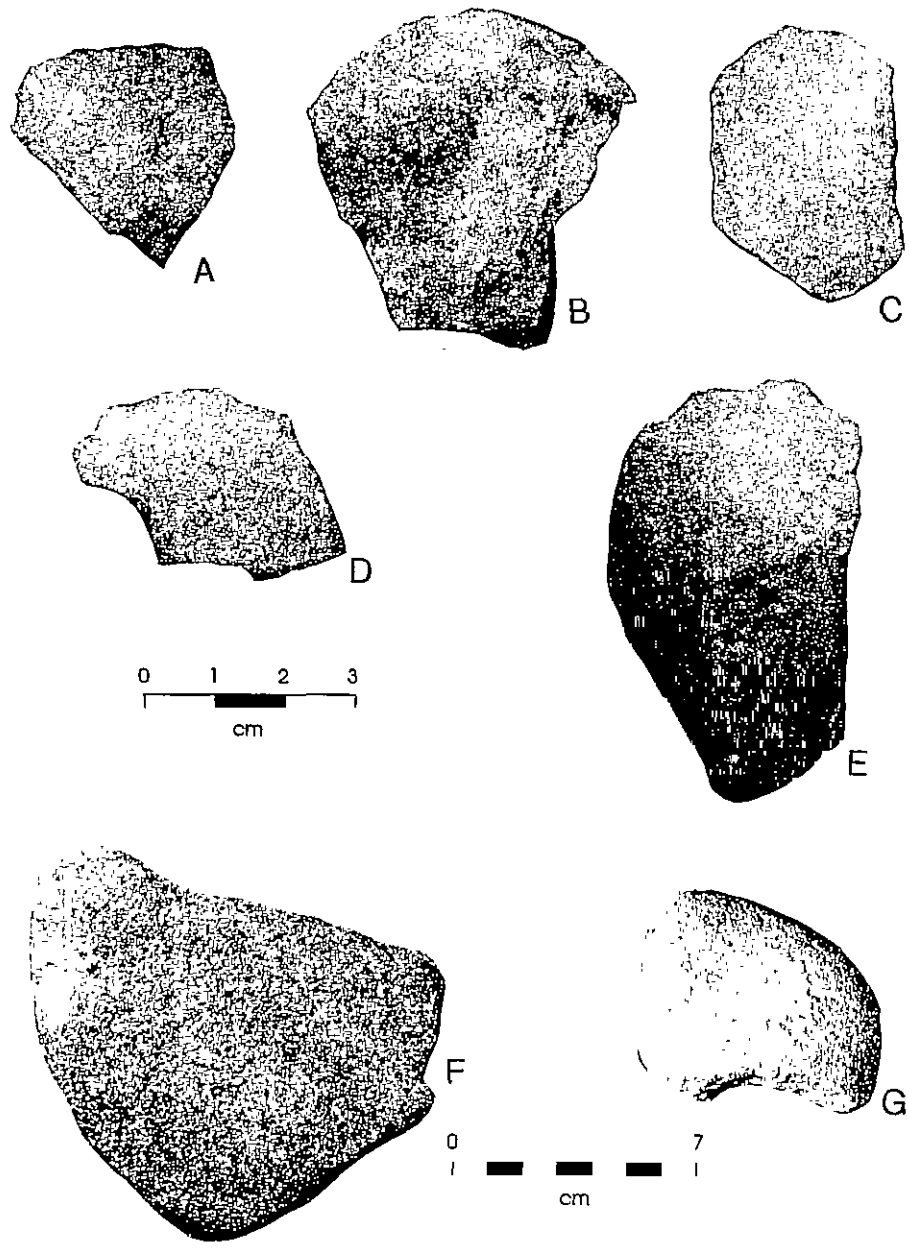

Figure 78. Scrapers and other artifacts from the Sicily Drop Zone. A-E, quartz scrapers (31HK126, 31HK437, 31HK118, 31HK126, 31HK500); F, grinding stone (31HK159), G, anvil (31HK99).

Recommendations

It is advised that sites recommended as potentially eligible (31HK89, 31HK118, 31HK125, and 31HK435) be tested as soon as possible, with immediate data recovery on sites determined to be eligible for inclusion on the National Register. All have been damaged to varying degrees by erosion/deflation and collection, probably for the past 45 years. Three of the four sites (31HK118, 31HK125, and 31HK435) have fairly shallow subsurface remains. If they are allowed to erode for another 10 years there may be nothing left below ground. All of these sites are on areas that are rarely used for drops, so work there could be accomplished with little to no inconvenience to either the archaeological team or the military. It is also recommended that other drop zones be evaluated for cultural remains as soon as possible since potentially significant sites are under the same danger.

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APPENDIX 1.
SPECIMEN CATALOG

Accession Number 95345

Site Number 31HK508

Spec No.	Location	Number	Description
m1	site 3, surface	15	flakes
a2	"	1	CSPP (Caraway)

Accession Number 95346

Site Number 31HK434

Spec No.	Location	Number	Description
m1	site 4, surface	1	raw material (118.45 g)
a2	"	2	CSPP (1 MM I, 1 Thelma)(photo)
m3	"	46	flakes

Accession Number 95347

Site Number 31HK435

Spec No.	Location	Number	Description
p1	site 5/6, general surface	7	small sherds (19.87 g)
p2	"	1	large sherds (6.89 g) (photo)
a3	"	1	biface (photo)
a4	"	1	biface (photo)
m5	"	85	flakes
m6	"	47	flakes
m7	N480 E420	2	flakes
m8	N500 E420	3	flakes
m9	N500 E440	1	flake
m10	N500 E520	1	flake
m11	N520 E480	1	flake
m12	N520 E500	1	flake
m13	N520 E520	1	flake
m14	Unit 1, level 2	6	flakes
m15	" level 3	1	flake
m16	" level 4	2	flakes

Accession Number 95348

Site Number 31HK436

Spec No.	Location	Number	Description
a1	site 13, general surface	2	CSPP frags
m2	"	3	raw material (19.98 g)
m3	"	1	raw material (56.66 g)
m4	"	1	raw material (550 g)
m5	"	18	flakes
m6	"	41	flakes
m7	"	19	flakes
a8	"	1	biface
eb9	N110 E100	1 vial	charcoal (1.94 g)

Accession Number 95349

Site Number 31HK89

Spec No.	Location	Number	Description
m1	site 15, general surface	1	cobble (53.65 g)
m2	"	23	fire cracked rock (148.76 g)
m3	"	57	flakes
m4	"	40	flakes
m5	"	70	flakes
m6	Unit 1, 0-10 cm	2	flakes
m7	" 10-20 cm	1	flake
m8	TR1 ST15	7	flakes
m9	N500 E500	2	flakes
m10	N410 E550	3	flakes
m11	N440 E500	2	flakes

Accession Number 95350

Site Number 31HK437

Spec No.	Location	Number	Description
a1	site 17, general surface	1	scraper (photo)
m2	"	39	flakes

Accession Number 95351

Site Number 31HK438

Spec No.	Location	Number	Description
p1	site 19, general surface	1	large sherd (rim) (3.21 g)
a2	"	1	CSPP (Savannah River Stemmed) (photo)
m3	"	2	raw material (63.74 g)
m4	"	49	flakes

APPENDIX 1. SPECIMEN CATALOG

Accession Number 95352

Site Number 31HK96

Spec No.	Location	Number	Description
p1	site 20, general surface	6	small sherds (19.79 g)
a2	"	2	CSPP (Yadkin, Caraway frags)
m3	"	64	flakes
m4	N100 E100	1	flake
m5	N100 E110	2	flakes
m6	Unit 1, Level 1	1	flake

Accession Number 95353

Site Number 31HK440

Spec No.	Location	Number	Description
a1	site 21, general surface	1	biface fragment
m2	"	9	flakes
m3	"	22	flakes

Accession Number 95354

Site Number 31HK441

Spec No.	Location	Number	Description
m1	site 27, general surface	4	fire cracked rock (13.16 g)
m3	"	28	flakes
m3	"	134	flakes
a4	"	1	biface fragment

Accession Number 95355

Site Number 31HK442

Spec No.	Location	Number	Description
m1	site 30, general surface	8	flakes
m2	N100 E100	2	flakes

Accession Number 95356

Site Number 31HK443

Spec No.	Location	Number	Description
a1	site 37, general surface	1	CSPP frag (photo)
m2	"	7	flakes
m3	"	6	flakes

Accession Number 95357

Site Number 31HK444

Spec No.	Location	Number	Description
a1	site 34, general surface	1	CSPP (Stanly) (photo)
a2	"	1	cobble hammerstone
a3	"	1	biface frag
a4	"	1	biface frag
m5	"	18	flakes
m6	"	23	flakes
a7	general surface, SW edge	2 (mend)	CSPP (Guilford) (photo)
m8	surface, locus 1	31	flakes
m9	"	19	flakes
m10	surface, locus 2	6	fire cracked rock (317.24 g)
a11	"	1	CSPP (Yadkin) (photo)
m12	"	35	flakes
m13	"	11	flakes

Accession Number 95358

Site Number 31HK445

Spec No.	Location	Number	Description
a1	site 36, general surface	2	manganese glass frags
m2	"	6	flakes

Accession Number 95359

Site Number 31HK446

Spec No.	Location	Number	Description
a1	site 40, general surface	.1	biface frag
m2	"	15	flakes
m3	"	15	flakes
m4	Unit 1, Level 1	4	flakes

Accession Number 95360

Site Number 31HK447

Spec No.	Location	Number	Description
m1	site 42, general surface	13	flakes
m2	"	2	flakes

APPENDIX 1. SPECIMEN CATALOG

Accession Number 95361

Site Number 31HK448

Spec No.	Location	Number	Description
m1	occ 2	1	flake

Accession Number 95362

Site Number 31HK449

Spec No.	Location	Number	Description
a1	occ 3	1	CSPP (Hardaway) (photo)
m2	"	1	flake

Accession Number 95363

Site Number 31HK450

Spec No.	Location	Number	Description
a1	occ 4	1	scraper

Accession Number 95364

Site Number 31HK451

Spec No.	Location	Number	Description
m1	occ 6	1	flake

Accession Number 95365

Site Number 31HK452

Spec No.	Location	Number	Description
m1	occ 8	1	flake

Accession Number 95366

Site Number 31HK453

Spec No.	Location	Number	Description
m1	occ 10	1	flake

Accession Number 95367

Site Number 31HK454

Spec No.	Location	Number	Description
m1	occ 13	1	flake

Accession Number 95368

Site Number 31HK455

Spec No.	Location	Number	Description
m1	occ 14	1	flake

Accession Number 95369

Site Number 31HK456

Spec No.	Location	Number	Description
m1	occ 15	3	flakes

Accession Number 95370

Site Number 31HK457

Spec No.	Location	Number	Description
a1	occ 16	1	CSPP frag (photo)

Accession Number 95371

Site Number 31HK458

Spec No.	Location	Number	Description
m1	occ 17	1	flake

Accession Number 95372

Site Number 31HK459

Spec No.	Location	Number	Description
m1	occ 18	2	flakes

Accession Number 95373

Site Number 31HK460

Spec No.	Location	Number	Description
m1	occ 21	2	flakes

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Accession Number 95374

Site Number 31HK461

Spec No.	Location	Number	Description
p1	occ 23	2	small sherds (10.24 g)
m2	"	2	flakes

Accession Number 95375

Site Number 31HK462

Spec No.	Location	Number	Description
a1	occ 24	1	biface (photo)

Accession Number 95376

Site Number 31HK463

Spec No.	Location	Number	Description
a1	occ 25	3	CSPP (Guilford) (2 photo)
m2	"	2	flakes

Accession Number 95377

Site Number 31HK464

Spec No.	Location	Number	Description
m1	occ 27	4	flakes

Accession Number 95378

Site Number 31HK465

Spec No.	Location	Number	Description
p1	occ 28	1	small sherd (8.27 g)

Accession Number 95379

Site Number 31HK466

Spec No.	Location	Number	Description
m1	occ 30	1	flake

Accession Number 95380

Site Number 31HK467

Spec No.	Location	Number	Description
m1	occ 31	1	flake

Accession Number 95381

Site Number 31HK468

Spec No.	Location	Number	Description
m1	occ 32	1	raw material (24.86 g)
m2	"	1	flake

Accession Number 95382

Site Number 31HK469

Spec No.	Location	Number	Description
m1	occ 33	1	flake
m2	"	1	flake

Accession Number 95383

Site Number 31HK470

Spec No.	Location	Number	Description
m1	occ 34	1	flake

Accession Number 95384

Site Number 31HK471

Spec No.	Location	Number	Description
m1	occ 35	1	flake

Accession Number 95385

Site Number 31HK472

Spec No.	Location	Number	Description
m1	occ 36	1	raw material (31.25 g)
m2	"	1	flake

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Accession Number 95386

Site Number 31HK473

Spec No.	Location	Number	Description
m1	occ 37	5	flakes

Accession Number 95387

Site Number 31HK474

Spec No.	Location	Number	Description
m1	occ 39	1	flake

Accession Number 95388

Site Number 31HK475

Spec No.	Location	Number	Description
m1	occ 43, TR107 ST2	5	flakes

Accession Number 95389

Site Number 31HK476

Spec No.	Location	Number	Description
m1	occ 44	1	flake

Accession Number 95390

Site Number 31HK477

Spec No.	Location	Number	Description
m1	occ 46, TR130 ST10	2	flakes

Accession Number 95391

Site Number 31HK478

Spec No.	Location	Number	Description
m1	occ 47	7	flakes

Accession Number 95392

Site Number 31HK479

Spec No.	Location	Number	Description
m1	occ 50	1	flake

Accession Number 95393

Site Number 31HK480

Spec No.	Location	Number	Description
p1	occ 53	1	small sherd (4.13 g)

Accession Number 95394

Site Number 31HK481

Spec No.	Location	Number	Description
m1	occ 54, TR145 ST1	3	flakes

Accession Number 95395

Site Number 31HK482

Spec No.	Location	Number	Description
m1	occ 56, TR154 ST11	1	flake

Accession Number 95396

Site Number 31HK483

Spec No.	Location	Number	Description
m1	occ 59	3	flakes

Accession Number 95397

Site Number 31HK484

Spec No.	Location	Number	Description
m1	occ 60, TR171 ST3	1	flake

Accession Number 95398

Site Number 31HK485

Spec No.	Location	Number	Description
m1	occ 61, TR171 ST16	4	flakes

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Accession Number 95399

Site Number 31HK486

Spec No.	Location	Number	Description
m1	occ 62, TR176 ST10	2	flakes

Accession Number 95400

Site Number 31HK487

Spec No.	Location	Number	Description
m1	occ 63, TR181 ST15	5	flakes

Accession Number 95401

Site Number 31HK488

Spec No.	Location	Number	Description
a1	occ 65, TR194 ST13	1	CSPP tip
a2	"	1	CSPP (photo)

Accession Number 95402

Site Number 31HK489

Spec No.	Location	Number	Description
m1	occ 66, TR194 ST6	5	flakes

Accession Number 95403

Site Number 31HK490

Spec No.	Location	Number	Description
m1	occ 67, TR194 ST21	1	flake

Accession Number 95404

Site Number 31HK491

Spec No.	Location	Number	Description
m1	occ 68, TR195 ST6	1	flake

Accession Number 95405

Site Number 31HK492

Spec No.	Location	Number	Description
m1	occ 70, TR197 ST12	1	flake

Accession Number 95406

Site Number 31HK493

Spec No.	Location	Number	Description
a1	occ 71, TR207 ST11	2	CSPP (photo)

Accession Number 95407

Site Number 31HK494

Spec No.	Location	Number	Description
m1	occ 72, TR212 ST8	3	flakes

Accession Number 95408

Site Number 31HK495

Spec No.	Location	Number	Description
a1	occ 73, TR213 ST4	1	CSPP frag

Accession Number 95409

Site Number 31HK496

Spec No.	Location	Number	Description
m1	occ 74	1	flake

Accession Number 95410

Site Number 31HK497

Spec No.	Location	Number	Description
m1	occ 75	1	flake

Accession Number 95411

Site Number 31HK498

Spec No.	Location	Number	Description
m1	occ 76, TR216 ST12	1	flake

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Accession Number 95412

Site Number 31HK499

Spec No.	Location	Number	Description
m1	occ 77, TR226 ST7	5	flakes

Accession Number 95413

Site Number 31HK500

Spec No.	Location	Number	Description
a1	occ 78, TRS229 ST9	1	scraper
a2	"	1	hammerstone frag

Accession Number 95414

Site Number 31HK501

Spec No.	Location	Number	Description
m1	occ 80 (TR232 ST4)	4	flakes

Accession Number 95415

Site Number 31HK502

Spec No.	Location	Number	Description
a1	occ 81 (TR234 ST4)	1	hammerstone
m2	"	2	flakes

Accession Number 95416

Site Number 31HK503

Spec No.	Location	Number	Description
m1	occ 82 (TR240 ST8)	1	flake

Accession Number 95417

Site Number 31HK504

Spec No.	Location	Number	Description
m1	occ 85 (TR244 ST8)	3	flakes

Accession Number 95418

Site Number 31HK505

Spec No.	Location	Number	Description
m1	occ 89 (TR255 ST13)	3	flakes

Accession Number 95419

Site Number 31HK506

Spec No.	Location	Number	Description
p1	occ 92 (TR259 ST13)	1	small sherd (6.49g)
m2	"	3	flakes

Accession Number 95420

Site Number 31HK507

Spec No.	Location	Number	Description
m1	occ 96 (TR262 ST2)	3	flakes

Accession Number 95421

Site Number 31HK80

Spec No.	Location	Number	Description
m1	site 10, general surface	1	raw material (6.13 g)
m2	"	26	flakes

Accession Number 95422

Site Number 31HK81

Spec No.	Location	Number	Description
m1	site 16, general surface	7	flakes
m2	"	62	flakes

Accession Number 95423

Site Number 31HK94

Spec No.	Location	Number	Description
a1	site 18, general surface	1	biface tip
m2	"	17	flakes
m3	"	9	flakes
m4	"	1	core (96.25g)
m5	occ 58 (TR163 ST15) (combined with site)	1	flake

APPENDIX 1. SPECIMEN CATALOG

Accession Number 95424

Site Number 31HK99

Spec No.	Location	Number	Description
a1	site 23	1	hammerstone frag
a2	"	1	CSPP frag (photo)
a3	"	1	biface
a4	"	1	anvil/hammerstone (photo)
m5	"	1	raw material
m6	"	15	flakes
m7	"	56	flakes
m8	"	86	flakes
m9	"	20	flakes
m10	"	149	flakes
a11	N500 E500	1	CSPP frag (photo)
m12	"	5	flakes

Accession Number 95425

Site Number 31HK100

Spec No.	Location	Number	Description
a1	site 22, general surface	1	CSPP (Lake Mohave) (photo)
m2	"	3	raw material (16.66 g)
m3	"	3	flakes
m4	"	83	flakes
m5	Unit 1, level 1	3	raw material (5.93 g)
m6	"	33	flakes
m7	" level 2	2	raw material (5.28 g)
m8	"	17	flakes
a9	"	1	biface
eb10	"	1vial	charcoal (1.08 g)
eb11	Unit 1, level 3	1 vial	charcoal (5.88 g)
eb12	"	1 vial	charcoal (6.13 g)
m13	"	1	flake
m14	N100 E100	3	flakes

Accession Number 95426

Site Number 31HK102

Spec No.	Location	Number	Description
m1	site 25, general surface	1	raw material (27.06 g)
m2	"	85	flakes
m3	N100 E100	1	flake

Accession Number 95427

Site Number 31HK103

Spec No.	Location	Number	Description
m1	site 24, general surface	22	flakes

Accession Number 95428

Site Number 31HK104

Spec No.	Location	Number	Description
m1	site 14, general surface	1	flake
m2	"	17	flakes

Accession Number 95429

Site Number 31HK107

Spec No.	Location	Number	Description
m1	site 12, general surface	29	flakes
m2	Unit 1, level 1	1	flake
m3	N100 E60	1	flake
m4	N100 E80	1	flake

Accession Number 95430

Site Number 31HK109

Spec No.	Location	Number	Description
p1	site 11, general surface	1	small sherd (4.46 g)
a2	"	1	hammerstone
m3	"	20	flakes
m4	"	34	flakes
m5	occ 20 (combined with site)	1	flake

Accession Number 95431

Site Number 31HK115

Spec No.	Location	Number	Description
p1	site 2, general surface	1	small sherd (4.07 g)
p2	"	2	large sherds (15.01 g)
m3	"	30	flakes
m4	"	110	flakes
m5	"	40	flakes
p6	occ 9 (combined with site)	1	large sherd

APPENDIX 1. SPECIMEN CATALOG

Accession Number 95432

Site Number 31HK118

Spec No.	Location	Number	Description
p1	site 1b, general surface	5	small sherds (19.01 g)
a2	"	4	CSPP frags (3 photo)
a2/1	"	1	biface
m3	"	98	flakes
m4	"	7	raw material (292.72 g)
m5	site 1c, con surf coll N395 E425	23	flakes
m6	" N395 E440	12	flakes
m7	" N410 E410	14	flakes
m8	" N410 E425	52	flakes
m9	" N410 E440	68	flakes
p10	" N410 E455	1	small sherd (0.59 g)
a11	" "	1	biface (photo)
m12	" "	31	flakes
m13	" "	1	raw material (58.70 g)
m14	" N410 E470	38	flakes
m15	" N410 E485	34	flakes
m16	" N410 E515	2	flakes
m17	" N410 E530	1	flake
m18	" N425 E395	4	flake
m19	" N425 E410	22	flake
p20	" N425 E425	1	small sherd (1.22 g)
m21	" "	49	flakes
m22	" N425 E440	48	flakes
a22/1	" "	1	biface frag
m23	" N425 E455	2	raw materials (136.97 g)
m24	" "	63	flakes
m25	" N425 E470	24	flakes
m26	" N425 E485	27	flakes
m27	" N425 E500	1	flake
m28	" N425 E515	6	flakes
m29	" N425 E545	3	flakes
m30	" N440 E410	1	raw material (13.39 g)
m31	" "	3	flakes
a32	" N440 E425	1	CSPP frag
m33	" "	97	flakes
m34	" "	2	raw material (11.17 g)
m35	" N440 E440	6	flakes
a36	" N440 E455	1	biface
m37	" "	113	flakes
m38	" N440 E470	34	flakes
p39	" N440 E485	1	small sherd (1.48 g)
m40	" "	33	flakes
m41	" "	27	flakes
p42	" N440 E500	1	small sherd (2.39 g)
m43	" "	32	flakes
p44	" N440 E515	2	small sherds (3.97 g)
m45	" "	8	flakes
m46	" N455 E425	19	flakes
m47	" N455 E440	37	flakes

a48	"	N455 E455	1	used flake
m49	"	"	72	flakes
m50	"	N455 E470	1	raw material (44.55 g)
m51	"	"	18	flakes
m52	"	"	22	flakes
m53	"	N455 E485	15	flakes
p54	"	N455 E500	2	small sherds (4.69 g)
m55	"	"	14	flakes
m56	"	N455 E515	3	flakes
m57	"	N470 E440	12	flakes
m58	"	N470 E455	17	flakes
m59	"	"	30	flakes
a60	"	N470 E470	1	scraper
m61	"	"	24	flakes
m62	"	"	44	flakes
p63	"	N470 E485	5	small sherds (8.57 g)
m64	"	"	56	flakes
m65	"	"	51	flakes
a66	"	N470 E500	1	CSPP (Palmer) (photo)
m67	"	"	7	raw material (160.99 g)
m68	"	"	40	flakes
m69	"	N470 E515	13	flakes
m70	"	N470 E530	1	flake
m71	"	N485 E440	5	flakes
m72	"	N485 E455	20	flakes
m73	"	"	61	flakes
p74	"	N485 E470	2	small sherds (3.73 g)
m75	"	"	51	flakes
m76	"	"	53	flakes
m77	"	N485 E485	38	flakes
p78	"	"	1	small sherd (0.89 g)
m79	"	N485 E500	21	flakes
m80	"	N485 E515	2	flakes
m81	"	N485 E530	1	flake
m82	"	N500 E440	1	flake
m83	"	N500 E455	22	flakes
m84	"	N500 E470	35	flakes
m85	"	N500 E485	14	flakes
m86	"	N500 E500	13	flakes
m87	"	N500 E515	8	flakes
m88	"	N515 E455	1	flake
p89	"	N515 E470	1	small sherd (3.64 g)
m90	"	"	1	raw material (82.05 g)
m91	"	"	65	flakes
a92	"	"	1	scraper
m93	"	"	11	flakes
m94	"	N515 E485	2	flakes
m95	"	N515 E500	5	flakes
m96	"	N515 E515	2	flakes
p97	"	"	1	small sherd (5.19 g)
m98	"	N530 E455	3	flakes
m99	"	N530 E470	1	flake
m100	"	N530 E485	11	flakes
p101	site 1c, general surface		1	small sherd (0.96 g)

m102	"	3	raw material (77.94 g)
a103	"	2	bifaces
a103/1	"	1	CSPP frag
a103/2	"	1	hammerstone
m104	"	31	flakes
m105	"	50	flakes
m106	"	40	flakes
m107	site 1c, Unit 1, level 1	1	flake
m107/1	site 1c, shovel tests, N425 E395	1	flake
m108	" N425 E425	1	flake
m109	" N425 E515	1	flake
m110	" N440 E410	1	flake
m111	" N440 E440	1	flake
m112	" N440 E485	1	flake
m113	" N440 E515	1	flake
m114	" N470 E485	6	flakes
m115	" N500 E455	1	flake
m116	" N500 E470	1	flakes
m117	" N500 E500	1	flake
m118	" N530 E410	1	flakes
m119	" N410 E425	3	flake
m120	" N530 E485	1	flake
m120/1	" N515E470	1	flake
m121	site 1, locus a, general surface	12	flakes

Accession Number 95433

Site Number 31HK124

Spec No.	Location	Number	Description
a1	site 9, general surface	1	CSPP frag (photo)
a2	"	1	hammerstone
m3	"	20	flakes
m4	"	25	flakes
m5	"	4	flakes
a6	site 8, surface	1	CSPP frag
m7	"	6	flakes
m8	"	22	flakes

Accession Number 95434

Site Number 31HK125

Spec No.	Location	Number	Description
m1	site 7, general surface	9	flakes
a2	"	1	CSPP frag (photo)
m3	"	37	flakes
m4	"	1	raw material (20.53 g)
m5	TR42 ST16	4	flakes
m6	Unit 1, level 1	19	flakes
m7	" level 2	5	flakes
eb8	"	1 vial	charcoal (3.79 g)

eb9	"	level 3	1 vial	charcoal (7.52 g)
eb10	"	level 4	1 vial	charocal (1.78 g)

Accession Number 95435

Site Number 31HK126

Spec No.	Location	Number	Description
a1	site 26, general surface	1	scraper (photo)
a2	"	1	uniface
a3	"	1	scraper (photo)
m4	"	44	flakes
m5	"	49	flakes
m6	"	1	raw material (56.01 g)
m7	N100 E100	1	flake

Accession Number 95436

Site Number 31HK128

Spec No.	Location	Number	Description
p1	site 29, general surface	18	small sherds (36.21 g)
p2	"	7	large sherds (45.67 g)
p3	Unit 1, level 1	5	small sherds (11.68 g)
p4	"	1	large sherd (5.75 g)
p5	" level 2	4	small sherds (8.36 g)
p6	T193 ST16	4	large sherds (37.98 g) (photo)
p7	"	1	small sherd (1.18 g)

Accession Number 95437

Site Number 31HK148

Spec No.	Location	Number	Description
a1	site 28, general surface	1	CSPP (photo)
p2	"	5	small sherds (11.70 g)
p3	"	1	large sherd (11.49 g)
m4	"	29	quartz flakes
m5	"	52	metavolcanic flakes
m6	"	2	raw material (88.70 g)

Accession Number 95438

Site Number 31HK154

Spec No.	Location	Number	Description
a1	site 41, general surface	1	biface
m2	"	17	flakes

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Accession Number 95439

Site Number 31HK159

Spec No.	Location	Number	Description
a1	site 39, general surface	1	grinding stone (photo)
m2	"	16	flakes
m3	Unit 1, level 2	2	flakes

Accession Number 95440

Site Number 31HK79

Spec No.	Location	Number	Description
m1	occ 42, TR106 ST9	1	flake

Accession Number 95441

Site Number 31HK161

Spec No.	Location	Number	Description
m1	site 37, general surface	1	metavolcanic flake
a2	"	1	CSPP (Halifax) (photo)
p3	"	40	small sherds (95.59 g)
p4	"	24	small sherds (31.80 g)
p5	"	2	large sherds (13.04 g) (photo)
m6	"	22	metavolcanic flakes
m7	"	13	quartz flakes

Accession Number 95442

Site Number 31HK162

Spec No.	Location	Number	Description
m1	site 38, general surface	19	flakes
p2	occ 93, T259 ST15	2	small sherds (10.09 g)
m3	"	3	flakes

Accession Number 95443

Site Number 31HK166

Spec No.	Location	Number	Description
m1	site 32, general surface	13	flakes
m2	"	26	flakes

Accession Number 95444

Site Number 31HK170

Spec No.	Location	Number	Description
a1	site 33, general surface	1	biface tip
m2	"	16	flakes
m3	"	27	flakes
m4	occ 79 (combined with site)	1	flake

Accession Number 95445

Site Number 31HK173

Spec No.	Location	Number	Description
eb1	site 35, N110 E100	1 vial	charcoal (0.53 g)
a2	site 35, general surface	1	scraper (photo)
a3	"	1	biface
m4	"	65	quartz flakes
a5	"	1	biface
m6	"	21	flakes
m7	occ 83 (combined with site)	1	quartz flake

Accession Number 95446

Site Number 31HK178

Spec No.	Location	Number	Description
m1	occ 41, T84 ST12	4	flakes

Accession Number 95447

Site Number 31HK84

Spec No.	Location	Number	Description
m1	occ 45 (TR123 ST1)	5	flakes

Accession Number 95448

Site Number 31HK87

Spec No.	Location	Number	Description
m1	occ 48 (TR132 ST8)	1	raw material (38.32 g)
m2	"	4	flakes

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Accession Number 95449

Site Number 31HK88

Spec No.	Location	Number	Description
m1	occ 49 (TR134 ST13)	1	flake

Accession Number 95450

Site Number 31HK91

Spec No.	Location	Number	Description
m1	occ 52 (TR140 ST15)	1	flake

Accession Number 95451

Site Number 31HK92

Spec No.	Location	Number	Description
m1	occ 55 (TR150 ST11)	1	flake

Accession Number 95452

Site Number 31HK93

Spec No.	Location	Number	Description
m1	occ 57 (TR154 ST14)	2	flakes

Accession Number 95454

Site Number 31HK105

Spec No.	Location	Number	Description
m1	occ 40	1	flake

Accession Number 95455

Site Number 31HK106

Spec No.	Location	Number	Description
m1	occ 38	1	flake

Accession Number 95456

Site Number 31HK110

Spec No.	Location	Number	Description
m1	occ 22	2	flakes

Accession Number 95458

Site Number 31HK113

Spec No.	Location	Number	Description
m1	occ 11	1	flake

Accession Number 95459

Site Number 31HK114

Spec No.	Location	Number	Description
m1	occ 7	1	flake

Accession Number 95461

Site Number 31HK116

Spec No.	Location	Number	Description
a1	occ 5	1	CSPP (photo)

Accession Number 95462

Site Number 31HK117

Spec No.	Location	Number	Description
m1	occ 1	3	flakes

Accession Number 95463

Site Number 31HK129

Spec No.	Location	Number	Description
m1	occ 64 (TR184 ST16)	3	flakes

Accession Number 95464

Site Number 31HK156

Spec No.	Location	Number	Description
m1	occ 90 (TR256 ST1)	3	flakes

Accession Number 95465

Site Number 31HK157

Spec No.	Location	Number	Description
m1	occ 91 (TR257 ST 7)	1	flake

Accession Number 95466

Site Number 31HK158

Spec No.	Location	Number	Description
m1	occ 88 (TR255 ST10)	4	flakes

Accession Number 95468

Site Number 31HK164

Spec No.	Location	Number	Description
m1	occ 95 (TR260 ST4)	3	flakes

Accession Number 95469

Site Number 31HK165

Spec No.	Location	Number	Description
m1	occ 94 (TR260 ST3)	5	flakes

Accession Number 95470

Site Number 31HK90

Spec No.	Location	Number	Description
a1	occ 97	1	CSPP (Halifax) (photo)
m2	"	4	flakes

Accession Number 95473

Site Number 31HK175

Spec No.	Location	Number	Description
a1	occ 84 (TR240 ST18)	1	CSPP (Guilford) (photo)

Accession Number 95474

Site Number 31HK176

Spec No.	Location	Number	Description
m1	occ 87 (TR244 ST13)	4	flakes

Accession Number 95475

Site Number 31HK177

Spec No.	Location	Number	Description
a1	occ 86 (TR244 ST11)	1	biface (photo)